

MILLING ENGINEER. AND

Fourteenth Year.-No. 9.

MILWAUKEE, SEPTEMBER, 1889.

Subscription Price, \$1.00 Per Year.

STILWELL & BIERCE MFG. CO.

GINEERS MILLI

Manufacturers of the Celebrated ODELL ROLLER MILLS and a full line of

Machinery. Flour and Corn Mill

ODELL SYSTEM.

Contracts taken for mills of any size, large or small, and results GUARANTEED.

KER'S AMERICAN FLOUR MILL 🕸 GRAIN ELEVATOR DIRECTORY

FOR 1890 - '91

Will be issued about March 1, 1890. Price Ten Dollars. It will be the most complete of any we have yet published, and will possess many new and valuable features. Send in your orders now to be placed on file. No payment required until delivery of the work.

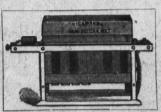
Superior Quality!

THE WORK DONE BY THE

RICHMOND

Grain : Cleaning : Machinery

BRAN BUSTERS



CAIN, HANTHORN & CO., Model Roller Flour Mills,

CAPACITY 400 BARRELS.

Empire Horizontal Bran Duster.

ATCHISON, KANSAS, June 24th, 1889.

RICHMOND MANUFACTURING CO., LOCKPORT, N. Y.:

Gentlemen-In regard to the machines we use, will say that we have:

1 No. O Grain Separator;

2 No. 3 Adjustable Scourer and Polishers;

3 Empire Horizontal Bran Dusters;

All of your manufacture, and consider the work being done of superior quality. In fact, better than could be produced on any other line of machines using the same number of machines.

Yours truly,

W. C. WINCHESEER, Head Miller.

LOCKPORT, N. Y., U. S. A.

Hughes Bros. Steam Pump Co.,

CLEVELAND, OHIO.

* PUMPS

Of Every Description for all kinds of Work.

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Satisfaction Guaranteed.

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Send for 1888 Catalogue.



MILL SHELLER

The most Compact, Durable, Best Sheller and Best Cleaner.

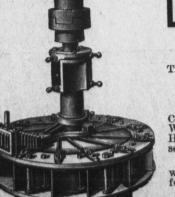
Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.

Please mention this paper. Write for full particulars to

JNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.



Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Head in this country. Our New Illustrated Book sent free to those owning water power.

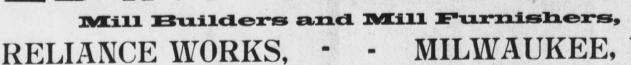
Write us for NE'W PRICES before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

Springfield, Ohio or 110 Liberty St., New York.



P. ALLIS &





SPECIALTIES:

Gray's Noiseless Belt Roller Mill.

Gray's Improved Centrifugal Reel.



Gray's Improved Flour Dresser.

The Reliance Purifier.

: PLEASE REMEMBER THAT

of the above-named machines was ever taken out of any mill in America, large or small, because of failure to do its work properly. All statements to the contrary are made either from misinformation or from a deliberate intention to mislead.

built by us during the last two or three years, including the largest and best built in America in that period, uses this line of machines and gives them an emphatic endorsement.

THIS LINE OF MACHINES was selected by the Duluth Imperial Mill Co, for its splendid 2,000 bbl. mill, after a most thorough and exhaustive investigation in Minneapolis and elsewhere, as being unquestionably the best the market affords. This was in the face of every form of misrepresentation that could be used against our machines.

LARGE ORDERS for our Rolls, Reels and Purifiers are coming in daily from the leading mills in Minneapolis during their annual shut-down for repairs. That shows what is thought of our work in the greatest milling center in America.

THE VALUE of any machine or system can be gauged to a nicety by the bitterness and unscrupulous-Int value ness of the warfare against it by would-be rivals. Judged by this standard (and there is no safer one) our line of machines stands without an equal.

IT IS TO YOUR INTEREST to know the truth and to get the best. Let us know your wants and our machines in operation.



RELIANCE WORKS,



Fourteenth Year. - No. 9.

MILWAUKEE, SEPTEMBER, 1889.

Subscription Price, \$1.00 Per Year.

THE USES OF MILLERS' ASSOCIATIONS.*

E are here for the purpose of doing what we can in behalf of ourselves and our business, and indirectly in behalf of the civilized world, for the civilized world depends largely upon millers for bread, man, as well as the miller, that frequent the great staff of life. In our discussions and wide fluctuations in the price of flour we should consider milling, and the details appertaining to it, from beginning to

First would come, probably, wheat, the kind and variety best adapted to the needs of the progressive and scientific winter-wheat miller. I can only touch lightly upon this point, but I cannot forbear saying that there must be something wrong in our method of farming compared with that in Europe, for our average yield per acre is said to be only twelve bushels, against double that amount abroad. I am glad to say, however, that the winter-wheat yield in this section probably averages much more than twelve bushels to the acre-say eighteen. This could be largely increased by skillful and careful farming, and no one is more interested in such farming than ourselves. A farmer should feed the land while the land feeds him. He sows generally eight acres per day, and about one and a half bushels of wheat are used to the acre for seed. Now, Prot. Blount, of the Colorado Agricultural College, from seven and a half pounds of hand-picked seed raised from one acre sixty-seven bushels of most excellent wheat. This shows that it pays to take pains. I think it would be an excellent plan to distribute among our farmers pamphlets embodying the latest and most advanced ideas regarding the best varieties of wheat, and the best way and time of sowing. Besides the quantity of the yield, the quality is of great importance, and the condition in which it is brought to market. We should see that exact justice is done to each and every farmer. If one should bring to the mill a load of nice, clean, long-berry wheat, he should get an extra price for it, and it should be clearly understood that the wheat, and not the man selling it, was the cause of the extra amount paid.

Spring-wheat mills have been greatly aided in introducing and selling their flour by its strength, but we can by the use of the longberry and other wheats very nearly equal their flour in strength, while in color and in sweetness of the bread made from the flour we are far ahead. When the wheat comes to mill, we should be ready for it. The best wheat-cleaning machinery in the market affords us a theme of fruitful discussion, as well as the rest of the machinery in our mills.

I have no doubt but that among my hearers are some strong advocates of the two great systems of the day, the long and the short. Now is the time for both to proclaim their strong points. After our wheat has been milled in the best way possible with the mills at our disposal, comes the placing of the finished product. Of course, we never do get enough for what we have to sell. The flour market seems always glutted, while recollection. I do not see much hope of fore the Northern Indiana Millers' Association.

our being able to fix upon uniform prices NEW WORKS OF THE J. B. ALLFREE CO. in this time of rapid fluctuations in the wheat market.

Millers should be educated against the silly cutting of prices. It is for the ing business made it necessary that they advantage of the consumer and middle have more space than their old site would should be avoided. Our associations, however, can do little to prevent this until it is larger and more powerful, embracing, as it should, all the millers in Northern Indiana.

But there is plenty for us to do. Let us get acquainted. Nothing will do us more good than to get away from home and the care, worry, and anxiety of business, at least as often as once in three months, and have a good sociable time with our fraternity in a reasonable way.

HE J. B. ALLFREE CO., Indianapolis, Ind., whose immense and rapidly increaspermit of, are now occupying their new quarters, of which we herewith give an illustration.—The new works are located at numbers 76 to 86 Shelby street and cover an area of fully two acres of ground; they are equipped with the very latest improved machiney in all the departments. The whole works are piped for natural gas which is used for fuel and lighting purposes. In the wood-working department there are the usual cutting out and erecting shops, and in the ironworking department a general shop for gearing, pulleys, shafting, and other general work, and also a shop for the corru-As far as practicable, I think it would be gation of rolls, etc. In addition to these a good idea to have our mill men attend there is a sheet-iron and tinners' depart-

these meetings—our head millers at least. ment, and a special department for mak-The rest and recreation, to say nothing of ing up bolting cloths. The draughting properties could be given by mixing with

NEW WORKS OF THE J. B. ALLFREE CO., INDIANAPOLIS, IND.

well repay them for the time taken.

self, am decidedly in favor of mutual plants of its kind in this country, and on with rinsing water. The hulls of the corn companies. Such insurance costs, as far as my experience extends, but little over half the rate that ordinary board companies charge.

The important question of getting our product to market by the cheapest routes should not be forgotten. The great trunk lines have virtually a pool, and they meet at Chicago and fix the price to suit themselves. When lake navigation is closed, we are on even terms with the territory west of Chicago, but in the summer time the difference between lake-and-rail and all-rail rates is far too wide, thus giving the Western mills a great advantage over those east of Chicago. All the latter mills, therefore, are interested in this matter, whether they dispose of their product east or not, for the large mills will sell wherever they can get the most money. If not east, then the battle is all the hotter here at home.

the milling points they may pick up, will rooms and general offices are on the south it passes into mills that merely crack necessitated its erection.

CHANGES IN CORN FOODS.

For many purposes of the culinary art, the process of reducing corn meal is not carried far enough. The meal is left too coarse, and it must either be placed on the table half-cooked, or cooked so long that many of its properties are changed. It is rare that corn meal is passed through a number 60 wire cloth, and yet such bolting will leave the product in grains, each containing many hundred starch cells. Several years ago it was considered the thing to have wheat flour "sharp," and the "fad" was carried to an extent that patent flour was often only very fine middlings. Its bread product was harsh and dry-tasteless and without tenacity after it had been baked a few hours. The too large to be readily acted upon by the converted into glucose.

ferment, and instead of a partial change of the starch into sugar, the most of it was in the bread in the form of starchlacking sweetness, and altogether unsatisfactory except to the baker-for it would absorb water like "all smoke," and still be dry as a bone, because the starch cells (which may number two or three hundred) in the center of a single grain of "sharp" flour would not receive the action from the water or ferment. The central cells would absorb the surplus water from the outside cells, leaving the loaf dry and harsh, and would not receive any action from the ferment that changed the starch into sugar, and hence the bread lacked sweetness.

It does not destroy the force of the above to assert that corn flour would lack the property of raising because of a nearly entire absence of glutinous properties. For culinary purposes corn would never usurp wheat, but many new and popular uses would be developed. Glutinous

remarks is to the effect that the uses of corn foods are but little understood either in the kitchen or in the mill. Viewed as foods the two must be taken together. A change in milling would involve more or less change in cooking. We hazard little in saying that great changes are liable in both and with the attention now being given to both branches of the subject the changes are likely to come soon.—Corn Miller.

GLUCOSE MANUFACTURE.

The following is the process for making glucose: The shelled corn is first soaked or several days in water, to soften the hull and prepare it for the cracking process. The softened corn is conveyed by elevators to one of the highest stories of the facory, and shoveled into large hoppers, from whence

side of the works. We congratulate the the grains without reducing them at The matter of mill insurance should J. B. Allfree Co. upon their having one once to a fine meal. The cracked grain receive our careful consideration. I, my- of the most complete and convenient is then conducted to a large tank filled the fact that the merit of their productions float at the top of the water, the germs sink to the bottom, and the portions of the grain containing the starch, becoming gradually reduced to flour by friction, are held in solution in the water. By an ingenious process both the hulls and the germs are removed, and the flour part now held in solution contains nothing but starch and gluten. This liquid is made to flow over a series of tables, representing several acres in area, and the difference in the specific gravity of the two substances causes the gluten and the starch to separate without the use of chemicals. The gluten is of a golden yellow color, and the starch snow white. By the time the gluten is completely eliminated the starch assumes a plastic form, and is collected from the separating tables by wheelbarrowfuls and taken to a drying-room, where it is prepared as the starch of commerce, or cause for this was that the particles were is placed in a chemical apparatus to be

SPECIAL STAMPERS OF SHEET METALS.

We do Stamping and Pressing of Sheet Metals for All Classes of Work. Also Tinning, Galvanising & Japanning.

---ALSO SOLE MANUFACTURERS OF----

SEAMLESS STEEL BUCKETS

INSIST on having this Bucket furnished when ordering.

your dealer for the Avery Pat. Seamless Steel Elev. Bucket

H. W. CALDWELL, General Agent,



CALDWELL PATENT.

We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"

. . . SEND FOR DISCOUNTS.

THE AVERY STAMPING CO.,

---- SUCCESSORS TO-

AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U.S. A.

131 West Washington Street, CHICAGO, ILL.



The Link-Belt Machinery Co.

Are Prepared to Furnish Machinery and Appliances for

Transmission of Power

After the most approved Plans, by use of

SHAFTING.
PULLEYS
HANGERS
CEARS.

* MANILLA ROPE. *

For Particulars and Estimates apply to them at

CHICAGO: 11 to 23 S. Jefferson St.

MINNEAPOLIS: 200 to 202 Washington Ave. S.

MILL WANTED.

The city of Garden City, Kansas, has voted aid to erect a flouring mill at that place, and will receive bids at the City Clerk office up to September 25, 1889, for a 75 barrel, a 100, or a 140 barrel grist mill, with a 25 ton feed mill attached. All proposition must be accompanied with a full statement of all machinery, size of engine, and size and kind of building and amount of aid wanted for each.

This is a good wheat country and a splendid

opportunity for a good miller,

Dessie Mothershead, City Clerk.

Flour Grain Testing Appliances

AND SPECIALTIES FOR THE

MILLING, FLOUR @GRAIN TRADES.



Now is the Time to Order your Grain Tester for New Wheat.

The Clipper Baking Test for Flour is the Greatest "Eye-Opener"

Invented in this line. Hundreds of them in successful operation among the largest and best mills in the United States and foreign countries.

This has been illustrated and advertised in the leading papers throughout the country. Prices and full particulars mailed on application. New Illustrated Folder now in Press. Should be pleased to hear from all parties interested.

H. J. DEAL'S SPECIALTY CO.,

J. B. A. KERN & SON, Merchant Millers,

Capacity 2,000 Barrels Per Day.

MILWAUKEE, WIS.

Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.

-RYE+FLOUR-

By most approved roller process, guaranteed the best and purest rye flour manufactured we invite correspondence from cash buyers.

READ

THE-

* NEW YORK *

Daily Commercial Bulletin

Its reputation as the most reliable commercial paper is conceded by all.

Sample Copies Free.

Its markets Reports are the most complete and trustworthy of any published and cover all trades.

Save Your Money

by subscribing to the "Daily Commercial Bulletin" and read its reports of the New York Markets.

PRICE:

New York Daily Bulletin Association,

No. 32 Broadway, - NEW YORK CITY

SCIENTIFIC AMERICAN

Is the oldest and most popular scientific and mechanical paper published and has the largest circulation of any paper of its class in the world, Fully illustrated. Best class of Wood Engravings. Published weekly. Send for specimen copy. Price \$8 a year. Four months trial, \$1. MUNN & CO. PUBLISHERS. 30 Broadway. N. Y.

ARCHITECTS & BUILDERS

A great success. Each issue contains colored lithographic plates of country and city residences or public buildings. Numerous engravings and full plans and specifications for the use of such as contemplate building. Price \$2.50 s year. 2c tts. a copy. MUNN & CO. PUBLISHERS.

DATENTS and yes security to MUNN de by the control of the control

TRADE MARKS.

In case your mark is not registered in the Patent Office, apply to MUNN & Co., and procure immediate protection. Send for Handbook.

COPYRIGHTS for books, charts, maps, stc. quickly procured. Address

MUNN & Co., Patent Solicitors,

If you are about to build write to the United States Miller for a copy of "Brean's House Plans," and enclose fifty cents in stamps. It will help you.

THE publisher of the UNITED STATES MILLER is desirous of having the names and addresses of Head Millers, Millwrights and Head Engineers in all mills having a capacity of 150 bbls. per day or more.

FOR SALE AND TO RENT.

[Short ads. inserted in this column for \$1 per insertion.]

FOR SALE OR LEASE. Mill site and improved water power for sale or lease on good terms, or will turn the property in and take partnership in flour milling business with a practical man who can furnish additional capital required. Address, F. P. BLAKE, Canon City, Colo.

FOR SALE OR LEASE. Fine elevator and milling property. A 150-barrel roller mill, located in central South Dakota; also two elevators, capacity 25,000 and 35,000 bushels; easy terms; small amount cash down, balance long time, low rate interest. Good crop of finest quality of wheat secured in this section. Investigation invited. Full particulars by addressing, X.X. UNITED STATES MILLER.

Sep3t

Milwaukee, Wis.

FOR SALE. A full roller process flouring mill, 100 barrels' capacity. Equipped with most approved modern machinery. Built less than one year. Citizens gave a bonus of \$2,500, which I will allow to purchaser of mill. Having an interest in a mill furnishing business. I desire to give it all my time. Full particulars on application. H. C. Dutton, Port Austin, Mich.

WANTED.

PARTNER WANTED. A practical miller, owns a first-class water-power in Dunn County, Wis. It has rock bottom and rock banks. It is worthy of careful inspection. No mill within 20 miles. Would be plenty of custom trade. The owner has not sufficient means to build a mill and wants a partner with from \$4,000 to \$6,000 to take an interest with him. If you mean straight business, write or come and see

A. Bellach,

Red Cedar Falls, Dunn Co., Wis.

PARTNER WANTED. A sober, industrious man, who understands the flour milling business, and has a capital of three thousand dollars. For particulars apply to W. J. MILLER & Co., Ballinger, Texas.

WANTED. A position as head miller in a mill from 150 bbls, upwards, by a miller of over 20 years' experience in first-class mills; have been in charge in mills from 200 to 800 bbls. capacity for 12 years; have first-class references; 10 years in one mill. Address MILLER, care of U.S. Miller, Milwaukee, Wis.



UNITED STATES MILLER AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY. SUBSCRIPTION PRICE-PER YEAR, IN ADVANCE. TO American subscribers, postage prepaid. \$1.00
To Canadian subscribers, postage prepaid. \$1.00
To Canadian subscribers, postage prepaid. \$1.00
Foreign subscriptions. \$5.
All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.
Bills for advertising will be sent monthly, unless otherwise agreed upon.
For estimates for advertising, address the United States Miller and The Milling Engineer.

(Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, SEPTEMBER, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. You will thereby oblige not only this paper, but the advertisers.

WE send out a number of SAMPLE COPIES of this issue. We solicit a critical examination of our Journal and invite you to subscribe. The price is one dollar per year. No premiums-no discount. Our October number will contain matters of special interest to millers which you will not find elsewhere.

T has been decided that a patent granted on a foreign invention expires at the same time that the foreign patent does.

THE total value of the exports of breadstuffs from the United States for the month of August were valued at \$1,299,050.

T is to be hoped that the October Congress of the Three Americas will prove of great benefit to our foreign relations on this continent.

THE Northwestern Miller, Minneapolis will shortly issue a neat little book for millers entitled "Hints on exporting" at the nominal price of 25 cents.

NEW YORK and Chicago are each straining every nerve to secure the World's Fair for 1892. We hope Chicago will get it, and it certainly stands a good chance in the contest.

THERE is a good demand for wheat heaters, especially in the winter wheat states, as the grain is reported not to be in a first-class condition for milling yet without using them.

T is quite probable that an extra session about the middle of October, to revise the tariff and internal revenue laws with a view of reducing the revenue.

HE Duluth News of August 25 contains a two page illustrated description of ancient and modern milling, the latter being illustrated in the case of the Duluth Imperial Roller Mill of that city, which is just being completed.

A considerable quantity of flour shipped A from the Williamette Valley to China became mill-dewed soon after arriving in the warehouse. A change in the method of milling and packing would doubtless end the trouble.

OUR own Yankee Tom. Edison went to Europe and through the especial favor of King Humbert of Italy will come back as Count Thomas of Menlo Park. The best report of all, however, is, to use an Americanism, "His head ain't swelled a bit."

THE August number of the Electrical Mechanical and Milling News, of Toronto, Canada, is a most excellent one. It shows enterprise and thrift and deserves the esteem and patronage of every Dominion miller. The Dominion Millers' Association will find it a valuable ally in carrying out important work which they have taken up for the benefit of Canadian milling interests.

TT is estimated that the receipts of corn at Duluth for 1889 will reach 2,500,-000 bushels against 259,000 bushels in 1888. The corn comes principally from Nebraska and Iowa. The immense growth meeting held in Fargo, Aug. 24, unanimof this trade in corn via Duluth is sur-

TUCH complications of elevator grain certificates as Buffalo millers and dealers have had to contend with recently are decidedly disagreeable, to say the least, and to an outside observer appear to be strongly tinged with dishonesty somewhere.

THE National Association of British and Irish Millers held a very successful annual convention in Paris during August. R. W. Appleton, of Stocktonon-Tees, was elected president. We would suggest the feasibility of the Association holding its 1892 meeting at the World's Exposition in Chicago.

THE Consolidated Roller Mill Co. have A applied for injunctions to restrain The Wilford & Northway Mfg. Co. of Minneapolis and The Phœnix Iron Works Co. of North St. Paul, Minn., from infringement of their roller-mill patents. All parties express themselves as highly gratified and the prospects are that "the war will go bravely on" for some time to come. May Justice prevail.

T is gratifying to learn that the trade between the United States and the West Indies has so increased during the past year that a number of British vesour carrying trade. That time, we believe, to be not far in the future.

A millers is announced to take place of commercial inquiry. in Indianapolis on the second Tuesday in May, 1890. We trust that great interest will be taken in this matter, and that the largest gathering of Indiana millers ever held will take place at that time. The milling interests of Indiana are very great, and anything tending to develop them should be encouraged.

THE Waterway Convention held a very enthusiastic meeting at West Superior in August. Over 100 delegates were present. Resolutions were adopted to ask Congress to make appropriations for of Congress will be called to meet a ship channel 20 feet deep through the shallows and rivers connecting the great lakes; deepening the harbors in the lakes to accomodate vessels drawing 20 feet of water and surveying, lighting and improving the lake waterways to prepare them for the continually growing com-

> TE take pleasure in calling the attention of millers to the handsome page announcement of Messrs. Edw. P. Allis & Co. elsewhere in this number. It is truthful, pointed and specific and will prove interesting reading to such millers as have been favored with a peculiar circular which has recently been mailed to a considerable portion of the milling public, in which very misleading statements are made relating to changes made several years ago in one of our large

THE PILLSBURY MILLS SOLD.

ON what is considered as good authority the announcement is made that the great Pillsbury Mills at Minneapolis, Minn., have been sold. If this is true, as we have reason to believe, it seems quite probable that the buyer is an English syndicate. It is an open secret that negotiations are being made with a number of milling firms in different parts of the country by parties representing English capital, and by another month we may be able to make some important announcements in relation thereto.

NAKOTA citizens show the right spirit all around. The North Dakota Millers' Association, one of the liveliest millers' associations in this country, at a ously voted to ally their state organization to the Millers' National Association and elected their secretary Mr. John M. Turner, manager of the Mandan Roller Mill, representative in the executive committee. It is hoped that the South Dakota Association will soon follow the worthy example of their northern breth-

THE WHEAT SUPPLY.

"HE current issue of Bradstreet's estimate a shortage of about 12,000,000 bushels in the wheat crop of the world as compared with the crop of last year. The following countries are credited with increases as follows: United States, 82,000,000; Canada, 8,000,000; England and France, 32,000,000; other countries, 32,000,000, in all 154,000,000 bushels. The decreases are: Russia, 72,000,000; Hungary, 36, 000,000; Roumania, 8,000,000; Germany, 8,000,000; India, 18,000,000; other countries, 24,000,000, in all 166,000,000 bushels, or a net decrease of 12,000,000 bushels.

WE desire to call the special attention of millers to the announcement elsewhere of the Vortex Dust Collector Co. They do not propose to have the millers feel compelled to purchase any special dust collector to avoid infringement of patents. The Vortex machine is unquestionably a good one, performing sels have found it profitable to cross the its work as well and some say better than ocean and go into the trade. It would be any other dust collector in the market, still more pleasing, however, to note that and the manufacturers say: "We will we had enough American vessels to do protect all who buy it and use it from damage or suit." Any of our readers can readily satisfy themselves of the entire responsibility of this company by applying for call for a general meeting of Indiana information through the usual channels

> URING the month of July the fire losses in the United States and Canada, as compiled by The Commercial Bulletin aggregated \$11,-020,500, exceeding the figures of the corresponding month last year by over \$500,000; on the other hand, however, the fire waste for the elapsed seven months of this year was \$75,306,500, against for the same period in 1888, \$77,-789,320, and in 1887, \$76,928,100. This decrease, it is true, does not seem much when the totals are considered, but it must not be forgotten that year by year property values are mounting up at a rapid rate, and if by increased precautions the loss by fire can be kept even down to the limits of past years, it is a matter for some measure of gratification.

A unprovoked attack made by the tary of the Millers' National Association manufacturers of roller-mills, but also worthy of rejoinder, any more than we from a half dozen other well-known mandid, to say the least, the ungenerous editorial comments made by that publication nifying users of rollers of their construction, relative to THE UNITED STATES MILLER at from all judgments for damages or paythe time that it effected the purchase of ment of royalties that might be obtained two papers - still we desire to express tiously known as the "The Big Four." our opinion with other fair-minded conin this journal, which anyone of ordinary reality. intelligence would recognize from the title, if in no other way, as a burlesque on millers should fight the Consolidated the foolish habit of personal attacks in-

dulged in by some milling journals, has, we believe, nothing to do with the cause of the attack of the A. M. upon Mr. Barry. However, the idea which we hoped to convey, after the unkind comments showered upon us when The Milling Engineer was consolidated with THE UNITED STATES MILLER has become prominent at least, and the point has probably been grasped by some of the more capable intellects.

JOSEPH G. LEMON.

T becomes our painful duty to announce the death of Joseph G. Lemon, President of the Richmond City Mill Works, of Richmond, Ind.

Joseph G. Lemon was born at Leesburg, Kosciusko county, Ind., on July 28, 1843. The son of an itinerant Methodist preacher, his home in early life changed with the appointments of his father from place to place. His education was obtained mainly during four years (1852 to 1856) at Fort Wayne College, and afterward at Whitewater College, at Centreville, in Wayne county, Ind. He was an earnest student, and, though he retired from school at the early age of seventeen years, he had laid the foundation of a sound and practical education upon which he substantially built in after life. At seventeen he entered the business house of Israel Abrahams, at Centreville as a clerk. One year later, at the breaking out of the war of the rebellion, though still a mere youth, he patriotically volunteered in the defense of the Union, joining the 36th regiment of Indiana Volunteers as a private soldier. Promotion soon followed—first corporal, then lieutenant, at length for his soldierly qualities and fine business capacity, he was made adjutant of the regiment, a position rarely given to one so young, and therefore high evidence of good conduct and worth. He was with his regiment for nearly three years, participating in all the hard fought battles in which it was engaged. He was a prominent Mason, an Odd Fellow and a member of the post of G. A. R. of this city.

Mr. Lemon was a man of high character, strict integrity, honest and honorable in small as well as in great things. Of large business capacity, a useful and honored citizen, endeared to all who knew him as a Christian gentleman.

A family, consisting of his widow and two daughters, survive him.

" HONOR TO WHOM HONOR IS DUE."

THE Millers' National Association has unquestionably a good record in the matter of protecting its members from all unjust or exhorbitant demands of inventors of flour-milling machinery and processes of milling. The latest move of great importance in that direction is the protection of its membors from demands LTHOUGH we do not consider the for payment of royalties not only from what has come to be known as "THE BIG-American Miller upon the present Secre- Four," composed of four very prominent ufacturers who have given bonds indem-The Milling Engineer and consolidated the against said users by the corporation face-

Mr. S. H. Seamans, the late Secretary temporaries, that The American Miller is of the Millers' National Association long taking a puerile and unbusiness-like since saw how things were drifting and course simply for the sake of revenge for after innumerable conferences and much fancied slights, personal dislike, or per- correspondence, secured absolute immunhaps disappointment in not being able to ity from all prosecution by the Big Four "manipulate" Mr. Barry heretofore as for infringement of roller mill patents by desired. Such a course cannot be credit- bond duly executed March 9, 1887, and able to any paper claiming respectability. filed in the Secretary's office. Six other The A. M. is perhaps constructing a bed manufacturers then deemed it wise to file which may prove very uneasy to lie upon. similar bonds. Mr. Seamans is justified The question as to the writer of the article in feeling proud of his record in this headed "Remarks on Milling Journalism matter for he first conceived the idea and by The Arizona Kicker, Jr.," published rested not until the conception became

Even if some miller or combination of CONTINUED ON NEXT PAGE.

Supreme Court of the United States and defeat them in the end, the cost, worry and uncertainty would outbalance by a thousand fold the few dollars that it would have cost March 8, 1887, to have been members in good standing of the association. Of course, joining the association now would not protect new members from claims above referred to, but there are claims for other patents that will no doubt soon be brought to the notice of the milling public.

EWS .- The Consolidated Roller Milling Company of Chicago began an action Sept. 10, in the United States Circuit Court at Topeka, Kas., against the Great Western Manufacturing Company of Leavenworth for infringements of patents.

BURNED-David Oliver's oat-meat mill at oliet, Ill.

SCHNEIDER & BENOTSCH have purchased Dick's mill at Harrison, O.

THE Farmers Mill Co., are building a 50-bbl. roller mill at Lebanon, Tenn.

The Baltimore Corn and Flour Exchange will herafter grade clover seed.

THE Todd Milling Co., Dallas, Tex., own the Empire mills and Todd mills.

B.P. Shriver & Co., Union Mills, Md., having remodelled to roller system, have just started up.

St. Paul, Minn., has contracted for a Dean pump for its water-works, of ten millions gallons daily capacity.

THE three flour mills in Davenport, Ia. have "pooled their issues," and will hereafter run under one management.

THE Eureka Flour Mill Co., La Otto, Ind., have built a 50-bbl. stone mill. Rollers will be added later, making it a short-system mill.

SCRUGGS & WHALEY'S mill at Dallas, Tex., was badly wrecked by a terrific boiler explosion, Aug. 22. Fortunately no one was severely injured.

THE Central Illinois corn mill, the property of C.O.Matheny& Co., Springfield, Ill., burned at an early hour Sept. 1, entailing a loss of \$17,000; insurance \$3,000.

THE citizens of Bogard, Mo., are willing to offer good inducements to a good party to build a mill at that place. Write to T. J. Jones, Bogard, Mo., for particulars.

BURNED, Davis Bros.' mill and warehouse at Antigo, Wis.; also Eichstadt & Freemans' mill at Waterloo, Wis. Loss on the latter about \$12,000, with \$6,000 insurance.

A NUMBER of warehouses and barges filled with grain at Porta Costa, Straits of Carquinas, Cal., were destroyed by fire Aug. 26. Loss not less than \$600,000. G. W. McNear & Co. are the losers.

AT Harrisonville, Mo., Sept. 10, fire destroywarehouses belonging to the Missouri Pacific Railroad Company. The loss on the mill is \$35,000; insurance \$11,000. Loss to the warehouse, \$15,000; no insurance. The fire was of that a mill will be built at Shadwell, Va.incendiary origin.

FIRES.-Sandy and Hawkins mill at Alliance, O., badly damaged.—Sears & Co.'s mill at Fowler, O., burned August 3.—Thos. R. Wagner's mill at Siluria, Ala., destroyed .-Henry Braman's mill at Killaway, N. Y .-Aug. 28, Robert Mariner's flour mill at Cadott, Wis.; loss \$10,000, insurance \$5,000.

MILLS REMODELED .-- The Three Rivers Mill Co., Paducah, Ky., have remodeled their mill.—The following mills are all being remodeled now: S. H. Merton, St. Charles, Mo.; R. T. Davis Mill Co., Carroll, Mo., J. C. Working & Co., Augusta, Ill.; Kauffman Milling Co., St. Louis Mo.; The last firm is building a 1,000,000-bush. elevator.

CHARLES E. MANOR, a Pennsylvania millwright of long experience, in a recent letter says: "Most all the Pennsylvania large mills have adopted the roller system, the Allis rolls and system prevailing largely, and now the smaller mills, of which there are a great number, are rapidly falling into line. This class of mills average from 15 to 25 bbls. capacity per day." The short system is universal in this class of mills.

THE fifth wheat elevator for Fort Worth, Tex., is now being constructed, the third built this year. This city being the entrepot to the vast wheat fields of the pan-handle, which have only been opened two years, finds large grain-storage a necessity. This Texas wheat is exported to tropical countries without damage and the flour made from Texas wheat does not mold in hot climates. Fort Worth is now making 15,000 barrels of flour

THE J. B. Allfree Co., Indianapolis, Ind., have recently booked the following contracts: volumes are of a handy size.

Roller Mill Co. clear through the Rice Bros., Ladoga, Ind., 25-bbl. mill; Hartig Bros., Washington, Ind., 30-bbl. mill, which includes a full line of "Success Bolters, Keystone Roller Mills," etc., etc. They also report sales of special corn meal milling machinery to Parrish & Moor, Dresden, Tenn. John Hanning Distillery Co., Owensboro'. Ky.; Petersburg Milling Co., Petersburg, Ky.; Glenmore Distillery Co., Owensboro, Ky They also report sales of numbers of special machines of their own manufacture, including Bran Dusters, Sieve Scalpers, Bolters, &c.

> MILLS BEING REMODELED OR IMPROVED .-J. T. Crum & Son, Sandy, W. Va., changed to roller mill, 35-bbl. capacity; A. R. & W. J. McQuiston, Jamestown, Pa., are remodeling to a 50-bbl. roller mill; Crawn Bros., Mt. Craw ford, Va., have changed to a 40-bbl. roller mill; Grimes Bros., of Lexington, N. C., have given their mill a general overhauling. A.M. Newill, Champion, Pa., has contracted for a 35-bbl. short system roller mill; Davenport & Morris, Waskey's Mills, Va., have contracted to remodel to roller system. W. H. Sanders, Wellsburg, W. Va., rebuilding on roller system; J. Knight's mill at Camden, Me., was totally destroyed by fire; John C. Saylor has remodeled to a 30-bbl. roller mill; B. S. Woodman, Langhorne, Pa., have remodeled to roller system; E. W. Pear at Unionville, Md., is remodeling his mill; a number of mill-owners in Pennsylvania, Maryland and West Virginia, who had their mills destroyed by floods this year, have determined to rebuild.

NEW MILLS .- Michael Hamer, Tyrone, Pa., has started up his mill on the Reitz short system.—Kirby Bros. new mill at Medford, N. J. has started up in good shape.-The Orange Mfg. Co., Orange C. H., Va., have contracted for an 800 bushel corn-meal mill.—B. G. Manor New Market, Va., will remodel to roller system.—J. M. Tapper, New Baltimore, Pa., has contracted for remodeling his mill .-D. S. Boyer, Hagarstown, Md., has contracted for a 50-bbl. roller mill.—Grant Barnitz, Carlisle, Pa., has remodeled and started up a neat roller mill.-Efforts are being made to organize a stock company to build a 50-bbl. roller mill at Manchester, Tenn.-Parsons, Clark & Clouser have contracted for a complete 35-bbl. roller mill.—G. M. Horter's new roll er mill at Center Hill, Pa., is running well andturning out 50 bbls. of good flour daily. -Burlington, N. C., will probably soon have a flour mill.—The Empire Milling Company (corn mill) have incorporated with \$80,000 capital at Marietta, Ga.-The Luray (Va.) Mill Co. have recently sold out to a newly organized company which will improve the plant and increase the capacity .- W. S. Varner, Thomastown, Pa., have remodeled to a 40-bbl. roller mill.-D. Higley, Fayetteville, N. Y., will build a barley mill.-A. V. Morris & Son have purchased the Fort Johnson mill property at Akin, N. Y., and will improve it soon.-D. M. Klepser & Co., Martinsburg, Pa., are building a 75-bbl. roller mill.-The Hawkinsville Mill Co., Hawkinsville, Ga., has been organized and, will build a mill. Steam power will be added to the water powed the flour mill of W. H. Barrett and two er to secure more power, in Jordan, Crampton & Co's mill, at Berlin, Pa. John Locke, has concluded to rebuild his mill destroyed by the flood at Port Republic, Md.—It is reported The Columbia Milling Co. have contracted for a 200-bbl. roller mill.—The Farmers Alliance are contemplating the erection of a mill at Mangum, Tex.—Cunningham & Williams may build a mill at Scottsburg, Ky.—The Elk River Merchants Mill Co., will build at Prospect, Tenn.—The Hodges Mill Co., Watkins, Ga., have built a mill.—The Edgerton Mill Co., Edgerton, Mo., are building a 100-bbl. roller mill.—The Farmers Mill Co., Edwardsville, Ill., are building a 100-bbl. mill.—J.M. Bolling, Sedgwick, Mo., is building a 75-bbl. roller mill. Rosedale, Mo., are building a 75 bbl. roller mill.-J. D. Hopkins, San Saba, Texas, are building a 100-bbl. mill.-Boles & Boles of Blackwater, Mo., are building a 150-bbl. mill, -The Todds & Stanley Mill Furnishing Co.. of St. Louis, Mo., have contracted to build a 3-run mill for R. M. De Arozarena, City of Mexico, and a 2-run mill for Terrozas & Brittingham, Chihuahua, Mexico.-A new mill and elevator has been contracted for at Staunton, Ill.-Carroll & Barclay have contracted for a 150 bbl. mill at Russellville, Ky. Sallee & Condon, Pleasant Hope, Mo., burnt out a short time since, will rebuild.-Pritchard&Duke are building a 40-bbl. mill at Tompkinsville, Ky.-C. A. Wade of Parkersburg. W. Va., have contracted for a roller mill .-Todd & Justus, of Richmond, Va., have contracted for a 600-bushel corn-meal mill.

> A good and cheap edition of Charles Dickens' complete works, and also of Walter Scott's novels, has just been issued. We can supply our readers with sets of either, delivered by mail, post free, for \$1.50.

BRISTOL'S STEEL FASTENING.

The accompanying engravings illustrate a new type of belt fastening, manu- plan is adopted on many jobs where factured by the Bristol Mfg. Co., of there is not room enough to draw in the Waterbury, Conn., which on account of loose pieces. its resemblance in appearance and elasticity to the ordinary leather lacing, is called by them the "Steel Belt Lacing." It may be quickly and easily applied.

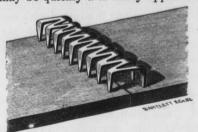


Fig. 1.

The Bristol fastening consists of a continuous zigzag strip of steel, having spurs alternating on opposite sides of a longitudinal center line, and bent at right angels as shown by Fig. 1, in which the fastening is represented as placed on the ends of a belt about to be joined. The spurs having been driven through the belt and clinched on the inside, the finished joint will appear as represented in Fig. 2.

The spurs should be driven through upon a piece of soft wood; then by laying the smooth side of the joint upon the

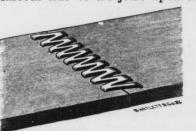


Fig. 2.

face of the pulley or any convenient piece of iron, the points may be clinched.

Fig. 1 represents the lacing placed in position, upon a belt to be joined.

Fig. 2 represents the finished joint after the spurs have been driven through and clinched. The fastening makes a smooth and elastic joint. No special tools are required.

SOMETHING FOR PATTERN-MAKERS.

BY P. S. DINGEY. ROM the facts that there are so many different ways in pattern-making and moulding of doing the same kind of a job, arises a great deal of discussion at times in the pattern shop and foundry, and whenever it is carried on intelligently by men who understand their business, good is sure to result, and the chances are that the best way will be arrived at. On the other hand, there are those who are so eager to advance their own ideas, and have them carried out, that they are unwilling to consider those of others—such an individual is not likely to be very profitable to any concern, for he thinks more of airing his own ideas than of arriving at any results that might be of practical value.

Sometimes, after consulting over a Berrien Bros., Camp Point, Ill., are building piece of work, a very simple method is a 100-bbl. roller mill.-W. B. Garrett & Co., arrived at-so simple that we wonder afterward why we did not think of it before. The part of a frame is one of those jobs that at first looks a little troublesome for moulding, and yet, upon examination, the trouble vanishes. The shape of the frame was such as to necessitate casting the boxes down, the sides not being thick enough to allow it. This difficulty may be overcome by making the boxes loose, and locating them on the side of pattern with loose dowel pins that can be pulled while ramming up; two cores are made and dried for the boxes, and rammed up with the pattern, after which the cores are taken out, and the sides of boxes and the bracket are drawn out: replace the cores and cover over with sand, finish ramming up and roll over flask. There are other ways of making this pattern, as I have hinted; a core print might have been put on the pattern, and a corebox made with the box pattern in the rons perfect safety, speed and luxury.

core-box, but it was thought that the above way of doing it was cleaner-this

"Be sure you are right, and then go ahead," is an old saying that needs reiterating in the pattern shop, because that is the birth-place of mistakes; and in saying this, I do not intend any reflection on the pattern-maker, but rather the reverse. I think the responsibility that rests upon the pattern department, as to whether work turns out right, is equal to that of the drawing room; for while the draftsman is responsible for the design, upon the pattern-maker rests a large portion of the responsibility of executing that design. The liability to mistakes is reduced considerably when the machinist takes hold where the pattern-maker and moulder have left off; the machinist's part is no doubt the most important as to the workmanship and right working of machinery—he can make it good, bad or indifferent; but mistakes in measurement he is not so liable to as the pattern-maker, because the machinist has the casting, and is given the drawing of it with instructions to finish to drawing.

When a pattern-maker is given a drawing he has to imagine the casting before him, and build something that will produce it; it may be called a pattern, but often it is really not a pattern of what is wanted, because of the complexity of the casting; it is sometimes all core-boxes and no pattern, and here is where the responsibility comes in, and will, I think, explain why the pattern shop is the birth-place of mistakes.

Of course, mistakes ought not to occur; but as long as pattern-makers are fallible, they will occur sometimes, though the utmost precaution may be taken. I am always suspicious of the man that never makes mistakes; he is not to be trusted. It has not been my intention here to defend those careless pattern-makers who are constantly making blunders, but to show that, from the nature of the trade of machinery pattern-making, there is more danger of errors being made in that branch of machinery building than others, and I do think that the careful, industrious workman, who seldom makes an error, is worthy of consideration when he does happen to be caught-for such a man usually feels bad enough over his mistakes, without having any one try to make him feel worse .- American Machinist.

LUXURY IN RAILROAD TRAVEL.

Ours is undoubtedly the age of innovations, useful and pleasurable as well. Nothing that could be devised to increase the comforts of the traveling public has been overlooked, and one road particularly is prominent in its regard for the convenience of its patrons. The C.C.C. & St. L. Railway, now better known as THE BIG FOUR ROUTE, in addition to advantages already offered the traveling public, has established a line of new Palace Sleeping Coaches, to be used on its through trains between Cincinnati and Chicago.

These cars, built especially for THE BIG FOUR ROUTE, by the WAGNER PALACE CAR COMPANY, are the very finest known in the railway service. Their interior finish is a marvel of upholstery, light mahogany and blue plush, heavy carpets and stylish drapery. Hot and cold water is provided in the several toilet-rooms. The buffet is a model of its kind. Electric bells communicate with all portions of the car, and in fact every detail which will add to the traveler's comfort or convenience has been provided.

No description could be adequate to the merits of these new coaches. They are palaces on wheels by day, sumptuous resting-places by night, a poet's dream and everybody's fancy at all times.

The arrangement of the drawing-room is a striking feature, affording all the comforts and privacy of a first-class hotel-room.

Lighted by the Pintsch compressed gas system, an absolutely safe illuminator, which provides twenty hours of coutinuous illumination with the incandescent power of five hundred candles.

With this new departure the BIG FOUR ROUTE is justly proud in offering to its pat-

BY J. MURRAY CASE.

N this paper I shall not presume to present anything new, but only to point out some of the essential rules in successful milling.

The money value of the product daily passing through a mill of ordinary capacity is so great, that seemingly insignificant matters become instrumental in making the successful or the unsuccessful

A mill having a capacity for turning out £500 worth of flour daily, if a profit of 2 per cent. is realized on the output, will yield, in round numbers, £3,000 annually; 2 per cent. margin is not excessive, yet, if by small imperfection in the details of the mill the percentage on the profit side is reduced by the figure 4 and the mill loses £3,000, the amount will appear quite large, for no miller cares to pay £3,000 annually for the glory of operating an unsuccessful mill.

I give this illustration to emphasize my point, which is the necessity for close attention to minor details or the turning

points in scientific milling.

There are some fundamental principles in roller milling of such vital importance that the changing of one spout, and the delivery of the material from that spout to the right place or the wrong place, will either make the mill profitable or unprofitable. It is no unfrequent occurrence for a milling expert to make changes in the mode of dealing with some special product, representing a cost of some £2, which makes many hundreds of pounds profit in the aggregate results of that mill during the year, and, in fact, produces such a revolution as to change the mill from an unsuccessful to a successful one. If this be conceded, and I dare say no thoroughly informed milling expert will deny it, then how vitally important to the mill owner these minor points become.

In a short essay I can only touch upon them briefly, but I give five essential rules :-

- 1. Make the reductions with special reference to broad bran, small amount of chipped wheat, large percentage of semolina, and least abrasion of bran possible.
- 2. Make the separation so that there shall be no return of material from the tail towards the head of the mill.
- 3. Never permit granular stock to reach the tail of the mill, or become intermingled with low grade products.

4. Make a separation of impure materials at every possible point and send it to low grade stock or the feed-bin.

5. Select your machines with special reference to the work to be done, and see that they are kept in perfect order.

These five rules embody the essence of scientific roller milling, assuming, of course, that the wheat has been well cleaned, which is a matter of vital import-

In relation to the first rule, the reduction of wheat to semolina, there exists a great diversity of opinion as to the best plan. The tendency is in the direction of a less number of breaks, and to a more extended length of roll surface on each break. This matter of rapid reduction at the head of the mill has many advantages; it produces a much higher grade of break flour, and, if the corrugations are properly adapted to each break, there is also an equal or larger quantity of semolina produced, and a broader bran.

When partly broken wheat is passed successfully through corrugated rolls, as in the extended reduction system, and only gently operated upon, there is a gentle scraping of the bran, which produces a bran dust, and which, on account of its extreme fineness, passes the meshes The woody substances hold the rolls of the silk along with the flour, and thus apart so that the fine semolina is not rediscolors it. If, on the other hand, we duced, and hence tails off to feed. The perform a large percentage of the work of mill should be so diagramed that it on each side, and tailing off "rich" to low bricks before it cools. Another very imreduction at the head of the mill, instead would be impossible for fine semolina to grade, and I have said, "There goes the porant condition is that the bricks be of producing this fine bran fibre that will reach the tail of the mill. This can only two per cent. margin." I have seen rolls always kept covered on the building site.

that will not bolt, and herein lies the principal advantage of rapid reduction.

To illustrate this more clearly, as it is an important point, I would say that if you take a knife and scrape a wheat berry three or four times gently, you will find bran powder produced so fine that it will bolt with the flour. Then instead of three gentle scrapings, make one severe scrape, and you will find a bran scale produced that will not bolt with the flour. With this material advantage in favor of rapid reduction, if other favorable conditions can at the same time be sustained, it is unquestionably the superior system.

I think it can be proved that four reductions, with adequate length of roll surface, and proper main break corrugation, is sufficient for any kind or condition of wheat, and that as large a quantity of semolina will be produced, a better break flour, and, at the same time, a broader, and fully as well-cleaned bran. If this be true then the matter of the number of breaks becomes one of the points in successful milling.

In making this statement of the number of breaks, I do not take into account the wheat-splitting machine, if used, as that can only be regarded as a wheat

The second rule, "make no returns," is vital importance. It not unfrequently happens that some material, rich in flour, but intermingled with impure stock, is passing off at some point in the mill. The miller thinks it too good to go to low grade or feed, and therefore sends it back to the break chop or some point ahead in the mill, but while this may reduce the quantity of low grade, and also make a cleaner offal, yet, at the same time, it will reduce the value of the flour, sometimes from 2s. to 4s. per sack. But suppose it reduces it but 1s., in a plant of 300 sacks we have a loss of £15 per day, or £4,500 per year. One spout is doing this disastrous business.

The milling engineer having left his newly constructed mill in good condition and running well, it not unfrequently happens that after a time the rolls get out of trim, the bolts more or less filled up, and machines generally not doing their work properly for want of adjustment and attention; then these rich tailings appear, and the miller shoots them back into the break chop, or to some roll or bolt in advance, and thus loads the mill with impure stock, which is wallowed back and forth until it is sufficiently reduced to bolt with the flour.

In all cases where there is a rich product either passing into feed or into the low grade stock, if the mill, when in good running condition, will not handle it properly, the mill owner should put in of good health. the necessary machinery to do so.

Sometimes an extra roll and bolt will over in the course of a year in the matter returns.

the millers of Europe and America a fabulous sum of money annually.

It is not unfrequently the case that inexperienced milling experts(?) so diagram the mill that a large quantity of fine semolina reaches the tail of the mill and becomes intermingled with the low grade stocks. That which ought to be patent flour either goes into low grade or feedgenerally a large percentage of it into the latter, since fine semolina will not grind well with second germ stock or bran fibre.

and a sufficiency of smooth roller surface thick stream and chopping the bran up, to ensure perfect reduction. I am an and the semolina rolls in the same condiadvocate of a short system at the head of tion, and stock going through unground, the mill, but a proportionately elongated and I have said, "There goes the two tity of low grade flour can be materially mill, bolts clogged up until they tailed decreased, and a perfect finish of the offal over one-fourth of their stock to the low into separating reels, and thus greatly this miller in six months." improve the general results without additional machines.

The fourth rule given, that is, "To separate the pure from impure stocks at every point possible," is also important. Milling reduced to a science is simply an first-class talent to operate his mill. extended system of separating. When a reel, or purifier, or any other machine can be made to tail off a deleterious material out so to speak, often several hundred it should be done at once, and this material sent to the low grade rolls or feed instead of carrying it through a successive interest paid upon it will depend largely number of rolls and reels, which is often done. Neither is it advisable to wallow semolina around through half-a-dozen grading reels, elevators, dusters, &c., which is sometimes done, to the great detriment of the general results. The aim should be to get every stock to its legitimate place, and the flour to the sack as soon as it can possibly be done, thus saving the continued abrasion and intermingling of impure stock with the pure in such a condition that it can not be separ-

In relation to the machines to be used, I am not here to advocate any special make. Every engineering firm of respectability in the milling line is making good machines, but it often occurs that they are not arranged in a manner to produce the best results.

The centrifugal reel is a machine of recognized merit, yet it may be used where it should not be, or where some other bolting machine would be better.

A perfectly equipped mill is one that possesses a specially constructed machine for each description of work, and each machine should be so arranged with regard to the others that no one of them should have either too much or too little to do. It is as great a mistake to have a bolt or purifier operate upon too small a quantity as it is to charge them beyond their capacity; in either case it is vain to look for satisfactory results. This I need scarcely point out to you, applies to the whole of the machines. A mill, in short, should resemble in its operation the organic action of a healthy human body, wherein each organ discharges its special functions, each is dependent upon the other, and the whole co-operate in producing that just balance of the system which is so essential to the maintenance

I may be permitted to mention one the centrifugal is still in request.

TURNING POINTS IN SCIENTIFIC MILLING.* bolt, we are producing a coarse bran scale be done by the proper numbers of cloth, running with a feed half-way across in a one at the tail. By this means the quan- per cent. loss." I have seen in the same secured, and in many cases I would grade department of the mill, and I have change a part of the corrugated rolls into said, "There goes enough good material smooth rolls, and the extra break scalpers into low grade flour and feed to 'break'

> You have no such millers on this side of the water I am sure, but it would be well if the intelligent European mill owner should study these points, and measure the importance of employing

> The miller is a most important financial personage to his employer; he is lending pounds of the mill owner's money daily. and the interest received upon it or the upon his efficiency.

Furthermore, the mill owner, in order properly to direct these "turning points" in his favor, should know every part of the mechanical operation of his mill; and he should not only know this but he should "dob" his hands up in dough frequently. It won't hurt them; the dough will wash off and the hands be whiter for the "dob,"-and probably the flour whiter too the next day, for the miller will then know that his employer has got a practical eye on him, and he will put forth every effort to excel.

There is much more that might be said upon these vital points, and upon others of almost equal importance, but I refrain from taking up more of your time.

In conclusions, I would say that there is no business that offers greater opportunities to the enterprising, or dangers to those who fail to appreciate the importance of perfection in every mechanical detail, however small. The wheat bin is like the ore-bearing rock of Colorado, which contains gold, silver and lead, and as the miner who employes the most improved machinery extracts the largest percentage of the precious metal, so the miller who intelligently avails himself of the most improved system and appliances which scientific milling has placed at his command, may confidently look for the highest results.

*A paper read by J. Murray Case, Esq., of Columbus O., U. S. A., before the British and Irish Millers' Association held in Paris, France, Aug. 25, 1889.

BRICKLAYING IN NORWAY.

The singular fact is mentioned that while in Great Britain building operations are suspended on the slightest approach of frost, bricklaying is carried on in Norway during almost the coldest weather that prevails for any time. Thus, in Christiana, building during the winter months, it is stated, has now been pracmachine, which, so far, has not been in- tised for at least twelve years, but more pay for themselves half-a-dozen times troduced very extensively to European frequently during the last five, all the millers, and that is the "Inter-Elevator buildings thus erected having stood reof making a clean finish and preventing Bolt." This style of reel is now being markably well. Experience has not shown made by every prominent American that walls built in winter exhibit, sub-The third rule, "Do not let granular milling engineer, and no milling machine sequently, more dampness than those stock reach the tail of the mill," is of in America has ever met with such uni- erected in summer. The reverse may almost equal importance. This rule is versal favor. As a separating machine be the case, since the difference between violated more than any other, and costs on the break chop and the dusting of temperature of the air and of the mortar semolina it is unquestionably superior to cools the latter by evaporation and takes any other class of reel. It is gentle in its away a great part of the moisture. Accordaction, and has a capacity almost equal to ing to the opinion of the principal builders the centrifugal. It is used in America in Christiana, bricklayers' work executed for all purposes except the dressing of with due care in winter, is really superior low grade material, for which purpose to similar work done in summer-the whole art of such work in frosty weather Now in relation to the operation of a consisting simply in the use of unslacked mill, I shall assume that every miller in lime, the mortar prepared with which is Great Britain and on the Continent is a to be made in small quantities immedigood miller, and that each attends to his ately before use, the proportion of lime duties properly, although I have known being increased as the thermometer falls; some millers who do not. I have seen the only care required is to utilize the purifiers running with a thick stream of unslacked lime so handily and quickly as semolina down the centre, the cloth bare to enable the mortar to bind with the

If you want to improve your milling, it will be worth your while to investigate the

NEW ERA SCALPER

* * * * * * * *

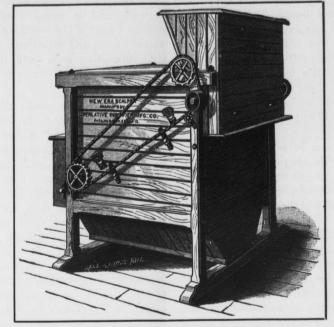
Hundreds in use in many of the best mills in the country.

THEIR WORK SPEAKS FOR ITSELF.

-******

Every machine guaranteed in every respect, and trial allowed if desired.





* * * * * * *

REQUIRES SMALL SPACE AND LITTLE POWER.

One machine will handle 4 breaks in in 75 or 100 bbl. mill, or one break in 500 bbl. mill.

The machine also does excellent work in handling Break Chop.

* * * * * * * *

A SAMPLE REPORT.

SUPERLATIVE PURIFIER MFG. CO., MILWAUKEE, WIS.:

MENASHA, WIS., July 16th, 1889.

Gentlemen—I presume you think it strange not hearing from me sooner. I have been afraid to put in your Scalper, as I was afraid it would not do the scalping for all my breaks, but have been happily disappointed, as it does the work well, and has not caused any trouble in the least. It scalpers for four breaks making three bbls. an hour, and has improved my flour a good deal. They are making a Scalper at , but don't like it as well as yours. I am trying to have put one in, and think they will do so.

If you wish any testimonials, please let me know, and I will be pleased to give you mine. I will remit payment for the Scalper in a few days.

Yours Truly,

J. H. JONES.

FOR PRICES, ETC., ADDRESS

SUPERLATIVE PURIFIER MFG. CO.,

MILWAUKEE, WISCONSIN.

VORTEX DUST COLLECTOR

(Patented January 29, 1889; March 26, 1889; May 25, 1889.)

+ THE VORTEX +

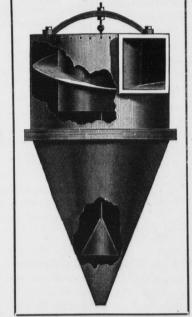
IS UNDOUBTEDLY THE

Best · Dust · Collector

ON THE MARKET FOR

PURIFIERS, GRAIN CLEANERS

AND OTHER DUST PRODUCING MACHINES.





Hundreds in Use Giving Best of Satisfaction.

Prices Reasonable

Machines Sold on their Merits.

We own Patents fully covering above machine, and will guarantee each and every user of same against all suits for infringement, SHOULD ANY BE BROUGHT.

PARTIES IN NEED OF DUST COLLECTORS WILL DO WELL TO WRITE US FOR CIRCULARS, ETC.

VORTEX DUST COLLECTOR CO.

MILWAUKEE, WISCONSIN.

MINOR MILLING MATTERS.*

BY MR. J. H. MACDONNELL.

R. PRESIDENT AND GENTLE-MEN-The various leading subjects bearing upon the manufacturing and commercial departments, in connection with flour milling, have already been so well and ably dealt with by members of the British and Irish Millers' Association, and by others at your previous proceedings, it would be but presuming upon your time if I should select any particular one of these subjects for consideration on the present occasion. I shall therefore only touch shortly upon a few things which, in the general administration of the details of our craft, are not always kept so prominently in view as they deserve to be, feeling certain at the same time that any remarks I may have to make in this connection have been anticipated, well thought out, and put into practice by some members of this Association already.

One of the chief matters in the modern system of flour milling which up to a recent date has received but scant attention, is that of thorough and efficient wheat cleaning.

We all know how frequently flour mills have been remodelled and fully equipped with the most perfect rolling, purifying, and dressing machinery, while the wheat cleaning departments were never even looked into. It is also pretty well known that whereas all this outlay and labor had been spent on the mill proper, uniform good results were not always obtained and that a change from one kind of wheat to another greatly altered the quality and value of the flour produced, the difference showing itself more pronouncedly in the "patents." In fact, impurities showed themselves in the semolina and middlings, which no amount of manipulation on the purifiers could eliminate. Millers who carefully studied the matter and made microscopical examination, found that much of the impurity was mineral matter, and in searching back found that the wheat cleaning machinery was unequal to the task of removing this matter completely. Others overlooked the cause and condemned the wheat, which, if properly and sufficiently treated, would have yielded a high-class flour.

As well as mineral matter, there is frequently found among the middlings small foreign particles of about the same size and practically the same weight as the particles of middlings, which, when rolled, become reduced to fine powder, pass through the flour dressing machines, and contaminate the flour. This is owing to the fact that some seeds about the same size and gravity as the wheat have not been extracted. I am going on the assumption that ordinary small seeds, etc., have been extracted.

In some mills one may find the inner casing of the first break rolls-and indeed of the second break also-covered with a layer of dark brown dust, proving conclusively that the wheat in those mills might be more thoroughly cleaned.

This all points to the necessity which exists for securing in the first place the most perfect arrangement possible for thoroughly cleaning and polishing the wheat berry, while extracting every particle of foreign matter, if the highest standard of flour is sought after.

The details of such an arrangement may have been thought of minor consideration by some millers, but it is on these very minor matters that the successful results of the manufacture-or the along the entire length of the rolls, and contrary-depends.

It is unnecessary for me to point out the modus operandi which, to my mind, presents itself as the most perfect by which to attain this thorough and efficient wheat cleaning. You have to keep in view the fact that, owing to our dependvarieties of quality are numerous, and will learn something by experimenting with too critical an eye, but rather to of 3,400 barrrels of flour.

each and all of them to the best advan- the ordinary slow going rolls. tage, always remembering that the arrangement must be so comprehensive necessary to employ aspiration on the that any change of wheat containing from break rolls, but with all due respect for the least to the greatest variety of foreign their opinion I think it is very much matter, or varying in size from the small-needed for several reasons. est to the largest, can be dealt with in a satisfactory manner. I would impress deal governed by circumstances, but this recommendation. Some may say, "Well, my mixtures are generally made from the top of the machine is the correct up of such and such wheats, the impuri-

difficulty comes in. But, without waiting for this difficulty to arise, how often does it not happen that a cheap wheat is offered, which you know would answer your purposes very well, but you are deterred from buying it owing to the impossibility of dealing with the impurities in it with your present imperfect ap-

Get these, then, into the most perfect and complete order that you can, if they have not already been remodelled; and when the alterations are being carried out, see that the arrangement is made with as few complicated, and what are called "combined," machines as possible, and that plenty of light and air are admitted all round, and particularly that the wheat leaving every machine is well aspirated. Have neither a fan nor a dust collector in your screen house. Let these be placed outside the mill for the greater safety of the property and the reduction of fire insurance rates.

After the wheat has been cleaned and sized, and before passing it through the automatic weighing machines preceding the first break rolls, I recommend a thorough good aspiration, so that no the wheat is really clean, put a handful of it into a tumblerful of clean water, agitate for a few moments, and if the the wheat is fit to mill, but if the water that the wheat cleaning has been imperfectly done.

Now that rotary scalping sieves are more generally employed the first break rolls may be set to break the wheat more severely where they are used to treat the chop than where the ordinary scalping reels perform this work, and yet, although the rolls are set closer together, the quantity of break flour will be found to be less from a sieve than from a reel, the quality of the semolina better, and a larger quantity of the germ detached.

With reference to breaks, I consider the number of these might with advantage be reduced from the usual six to five, or when very dry wheat is handled, to even

In thus reducing the number of breaks reducing the granulating surface; on the contrary I should recommend that it be increased and extended to rather more than millers now employ for six or seven breaks. If rolls are employed for granulating it is advisable to have them as long as the circumstances of the situation will permit; 30in to 36in are perfectly safe to work with, and these keep cooler generally than shorter rolls. The aim should be to get the wheat or chop spread evenly only permit the feed to be one particle perfectly attained. thick at any part of the roller surface, the broadest and cleanest bran flakes, the largest quantity of good bright semolina, and a minimum of break flour.

The feed rolls, or other feeding arrangeence on the markets of the world for the ments, have a great deal to do with the

that provision should be made to hanlde with quick feed rolls in comparison with

I have heard millers say that it is un-

The point to aspirate from is a good where these will allow I certainly think place and not from the hopper beneath, ties in which I know to be so and so, or, as may be sometimes seen, from the That may be all very well for a year or air, evaporation, and light dust naturally two, until the particular wheats you de- ascend, and it is only necessary to provide pended on are not to be had, then the a means for their escape at the top, aided by slight aspiration to get rid of these from the roller casing.

Millers are all now pretty well convinced, I think, that up to a certain point sieves are better for scalping the break products than ordinary reels. One thing, however, is frequently overlooked, whether sieves or reels are employed, and that is that the semolina and middlings leaving them and going to the purifiers are laden more or less with break flour. Nothing is more fruitful of loss than this; it is prejudical, too, to the quality of the bulk of the flour thereafter. First the loss is considerable, as the moment the material goes on the purifiers the flour is taken up with the fluffy and fibrous matter from the middlings, and although these (fluff and fibre) may be returned to the duster, the identity of the flour is lost, it is no longer so good as at the first.

Flour in the middlings also causes an obstruction of the meshes of the purifier sieve surface, which hinders the proper working of that machine, while a part of the flour gets down with the middlings to the reduction rolls, becomes darkened in the rolling, and prevents the rolls doing good work on the middlings. Some possibility of any dust may remain in it. millers may say: We knew all this well If a crucial test is required to ascertain if enough before, and our technicallyeducated purifier and machine men are quite capable of attending to such minor matters of detail. Granted; but permit water remains clear you may be satisfied me to say there is very constant supervision required, and it is not always found becomes discolored you will understand that the smartest milling student at the technical examination proves to be the most attentive man to mind such minor matters. It will repay you to occasionally look into these things for yourselves.

In some mills centrifugals are employed to dust the middlings, but the most gentle centrifugal has a tendency to break the middlings, and sensibly reduce the quality and quantity of the "patents." The purification of semolina and middlings is perhaps now receiving more attention than at any previous time in the history of modern milling, and no miller need be at a loss to know where he can get machines to suit his purpose; but let me again impress the fact that unless the wheat has been thoroughly cleaned to begin with, and all impurities extracted, the purification of the semolina and middlings will I do not for a moment suggest the idea of be unsatisfactory with even the most perfect purifier, but having the semolina and middlings absolutely pure, properly sized and correctly distributed to the reduction rolls, it will be found that their gradual reduction will be produced with greater facility and ease than under less particular treatment; the power required for reductions will be smaller. The number of the silk covers may be lowered without detriment to the color of the flour, the flour will be light and granular, and the general clean up of the offals quickly and

As in the case of the granulating rolls. object being of course to produce the so with the reduction rolls, the surfaces should be long enough for the distribution of the feed to them to be as thin as possible without leaving any portion uncovered.

In conclusion, I would ask you not to greater portion of our wheat supplies, the attainment of this object, and millers look on the matter in this short paper mills will give the company an aggregate

receive the suggestions I have made for what they are worth, and if any point is worthy of consideration think over it.

You will have noticed that I have confined my remarks to roller milling principally, but it is not unlikely that before another decade we may have to write of a different kind of milling. The details will, however, always remain about the same, and it will be to the interest of every miller to see that these are all carefully and strictly carried out at all times in order to ensure good work, satisfactory which can easily be eliminated by this conveyor, which takes the break meal to reports of the quality of the flour from or that apparatus already in the place." the elevator or the scalper. The heated his customers, a good yield of products, and a pleasing and profitable balance sheet at the finish.

* A paper read by Mr. J. H. Macdonnell, of Stock-ton-on-Tees, England, before the British and Irish Millers' Association in Paris, France, Aug. 25, 1889.

THE SAULT STE. MARIE CANAL.

BY R. E. PEARY, C. E. U. S. N.

HE St. Mary Canal, which forms the outlet of Lake Superior, is unique in several respects. It is one mile long, has a depth of 16 feet, and has the largest lock in the world, 515

feet x 80 feet x 18 feet lift. This canal was originally constructed in 1855 with two locks, each 350 feet x 70 feet by 9 feet lift. About 1870 it became evident that the capacity of the canal had been nearly reached, and the work of enlargement was undertaken. This consisted of the construction of the present lock and the deepening of the canal to 16 feet.

These improvements were completed in 1881, at a cost of about \$2,500,000, with a most astonishing result upon the traffic of the canal. The number of vessels increased and their size and draught increased to correspond with the larger water-way. The tonnage of the canal increased from 1,500,000 tons in 1881, the first year of the enlarged canal, to 4,500,000 in 1886, i. e. it trebled in five years. In 1888 the tonnage was over 5½ million tons. From 1885 to 1886 to total tonnage increased 37 per per cent., and from 1887 to 1888 the average tonnage per vessel increased some 20 per cent. The annual tonnage of the canal is now very nearly as great as that of Suez, 1,685 vessels having passed through the canal in one month. In 1886 it was seen that the capacity of the canal would be reached in two or three years, its ultimate capacity being 96 vessels per day of 24 hours, and 84 having already passed in that time, and a still further enlargement was proposed and is now in progress. This will consist of a lock 800 feet x 100 feet with a depth of 21 feet on the sills and a lift of 18 feet, and the deepening of the canal to 20 feet.

The new lock is to be placed upon the site of the two old ones, and will be used with the present new one. The cost of the enlargement is estimated at \$4,738,865, and the time 5 years. If on its completion, the traffic of the canal takes such a bound upward as after the last enlargement-and there is no reason to doubt that it will-Suez, even with its enlargement completed, will have difficult work to keep pace with it.

The present lock in this canal is undoubtedly the finest, as it is the largest in the world. It is manipulated entirely by hydraulic power furnished by the fall at the lock, and the operation of hauling in, locking, and hauling out a vessel is easily accomplished in 13 minutes. The cost per ton of passing vessels through the canal was in 1882-83 11 to 2 cents. It is now about one-half cent.

THE Standard, Excelsior and St. Anthony flour mills of Minneapolis, Minn., have been consolidated, and hereafter will be known as the Minneapolis Flour Manufacturing Company. The interests of D. Morrison & Co. and Morse & Sammis will be made into a stock company to be known as the company named above. The incorporators are to be D. Morrison, Clinton Morrison, Samuel Morse, Thomas A. Sammis and H. B. Whetmore. The capital stock will be \$600,000. The three

MILLING AND MECHANICAL NOTES.

[Condensed and compiled for the United STATES MILLER AND MILLING ENGINEER.]

In locating a flour mill it is generally and other commercial facilities than for pounds somewhat over a mile high." the sake of utilizing an ordinary water-

WHEN things go wrong in the mill the fault is either with the miller, the machinery or the stock. Ben. Franklin's advice, "be sure you are right and then energy in a form to be so expanded." go ahead," is good for the miller

To do successful milling not only quality but quantity of yield must be carefully attended to and, of course the best results must be obtained in the most economical way possible.

"THE most expert workmen in any trade have no difficulty in obtaining with a set screw. Very few are ever put plenty of work at good wages. A master on any other way, and, when they are, no knows that such men are too scarce to one else likes that way either. I have lose, and they are retained at any cost thought of a plan that I shall adopt when within reason."-Wm. Jago.

An automatic damper regulator will not fire a boiler, although we notice that many engineers act as if they labored under that impression. It will check the draught at a certain pressure and thus economize fuel, but if the fireman allows his fires to run down with the damper wide open he cannot hope to obtain economical work.

Ir a belt is new, or has been off the pulleys for some length of time, do not try to strain it together too quick. Better be a little lazy about it. A 24-inch belt 160 feet long will stretch 8 to 12 inches the first 24 hours it is on the pulleys. Let the belt stand in the clamps a few hours, or over night if possible, and much of the stretch can be taken out at

It is sometimes taken for granted that every well-built engine, in good order, must of necessity, give profitable returns under any and all conditions of labor, provided only that the engine be large enough; no thought being taken that it may be too large for the work, the purchaser seeming to reason, as Pat did in declining to have his foot measured by the shoemaker, but wanted all the leather he could get for the

BULGING IN BOILER PLATES .- An authority upon the subject says that bagging or bulging of boiler plates over the fire is in nearly every case traced to the membered that by flour stock is meant the use of oil in the boiler. Oil is sometimes fed to boilers by the false economy of tank, where the engine oil is caught, and whence that oil is pumped with the water into the boiler. Oil gathers the scum and dirt into a cake, which may settle on the fire sheet and thus prevent may not be altogether middlings, but it is contact with the water. The intense fire not properly prepared for flour. The miller heats the iron red hot, and the pressure bulges the plate. Scale, if allowed to accumulate in large quantities, may also possibly cause bulging, but the first cause may always be traced to oil.

STEAM.—It is reported that a German scientist, Herr E. Blass, has devised an incandescent lamp arrangement by which the interior of a boiler may be inspected while the same is under steam. A thick, black tube is inserted through a stuffing box, through which a small incandescent lamp is introduced, which is connected with a battery. By means of a thick glass plate, placed in the shell of the boiler at a convenient place, the illuminated interior of the boiler may be inspected. While this appears at first sight but a scientific experiment, brought into practical shape it might prove a valuable aid in investigating the conditions of a boiler at work, and thereby be the means of providing remedies for many of the existing uncertainties in boiler manipulation.

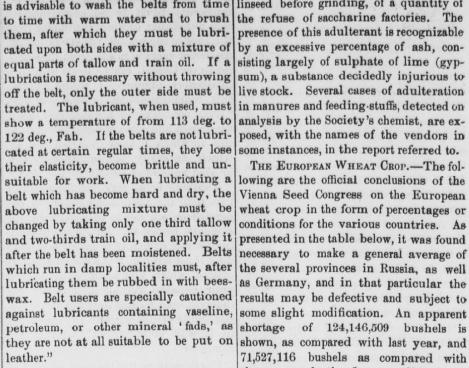
PROF THURSTON says: "There is sufficient storage energy stored in a plain cylinder boiler with 100 pounds pressure to raised places it stretches certain places in closed by the chemical committee of the rates.

half miles; a two flue boiler about two pounds from one half to two thirds of a better to do so with regard to shipping mile; and a 60 h. p. return boiler at 70

"A cubic foot of heated water under a pressure of 60 or 70 pounds per square inch, has about the same energy as one pound of gunpowder. At a low red heat it has about forty times this amount of

"The heat which has been absorbed by one pound of water to convert it into a pound of steam at atmospheric pressure is sufficient to have melted three pounds of steel or thirteen pounds of gold."

COLLARS ON LINE SHAFTS .- No one is satisfied with a collar put on a line shaft I get a chance. It is this: Have two good wrought-iron or steel collars turned and bored a shrink fit, and shrink one on the line at each end of the box next the main driving pulleys. If I ever want to get them off I will use hammer, cold chisel and sledge, and make new ones if wanted somewhere else. The collars should be at opposite ends of the same box, and not at the opposite ends of the shaft. The shafts seem to go nice when there is about \u00e4" end play, and goes that quarter of an inch too, if level and it has a chance. I know collars have been welded to a shaft times enough, and collars shrunk on in place of welding; but the point I wish to make is to shrink on a collar in the place of putting it on with a set screw or some complicated arrangement.—J. E. Sweet in American Machinist.



THE BEYNON ADJUSTER FOR ROLLS.

HE device shown herewith is for use in connection with roller mills. In the cut, A shows an outside view; B an inside view; C the casing; D brass worm wheel; E steel worm; Fhub of worm wheel; G spindle; H ferrule; I set screw; K handle. The at the Paris Academy of Medicine a new connecting rods of the roll are fastened to alimentary substance, "fromentine." which the hubs F in the place of the hand is obtained from wheat by the aid of millwheels or other devices for adjusting. The bearings of the spindle G are clongated to admit a longitudinal movement of the the oil which it contains. The substance handle K, so as to prevent kinking of the contains three times more nitrogenous connecting rods, should a hard substance substance than meat and a strong propor-

THE BEYNON ADJUSTER FOR ROLLS.

reels and the use of smooth rollers a writer in The Millstone says:

The centrifugal reel may be used in bolting nearly, if not all, of the various grades of flour stock. In order that this statement may not be misleading, it must be rematerial which is prepared to be bolted for the purpose of making a flour separation, that which has been scalped and the large turning the exhaust steam into the water bulk of coarse and sharp material removed from it. Flour stock may be material which has passed through a No. 7, 8, 9 or 10 cloth. After that it may be regarded as flour. The flour stock, it must be understood, is flour stock essentially-it is soft. If it is sharp it who keeps these points in view will not make a mistake in the use of a centrifugal reel.

The great mistake that is made in handling smooth rolls is in setting them too close, squeezing the stock, which operation is of all bulging in cylinder boiler plates always wrong. All smooth rolls should be operated in a manner as though they were sizing rolls, and not as if they were mashing INSPECTING BOILERS WHILE UNDER or grinding rolls. If, for any reason, the rolls are set too tight and flatten the stock, or if they have a heavy feed, there must always be a waste in the direction of the feed pile or the low-grade bin. There is a material mashed into and mingled with a superior grade of stock, which material is rated by the company which it keeps. It goes to the red-dog direct or makes rapid descent in that

LEATHER BELTS .- In an article on the working and care of leather belts, a German paper says :- "If a belt slides on the pulley, and cannot be tightened by shortening, it must be thoroughly lubricated. Resin or resinous substances are entirely unsuitable for increasing adhesion; in fact, they are, under all circumstances, highly injurious to the leather. They are simply a makeshift, and a bad one at that as they make the leather hard and brittle. The pulley becomes dirty and

ful device for adjusting the movable roll used for making soups, and even for makof a roller mill parallel with the stationary roll by means of an adjusting handle K, ing the rolls to the work, the bearings of riorating. the movable roll are prevented from heating, and it is claimed that a much better and a more even granulation of the material is secured, than can be obtained by using hand wheels or other devices. It is said that the vibration of the rolls cannot possibly cause any change in the adjustment. It is the invention of Mr. John R. Beynon, who is also the inventor of the Beynon Aspirator and the Beynon Alarm. Parties interested may correspond with Beynon & Murphy, Watertown, Wis., who are the manufacturers, and who will be pleased to answer all inquiries.



ITEMS FROM BEYOND SEAS.

THE great Vienna corn fair was almost a failure. The Jews boycotted it, and consequently buyers were not half as plentiful as usual.

AT a recent meeting of the Belgium was petitioned to take steps toward putforeign to cereals with the flour. The chairman read an extract from the parliamentary debates containing a statement to the effect that human bones were ground human food.

uneven by the resin, and by reason of its of adulterating linseed cake has been dis-freight. Passengers will be carried at low

project it to a height of over three and one the belt unnecessarily, and the velocity Royal Agricultural Society of England. of the driven pulley becomes variable. It This consists of the admixture with the and one half miles; a locomotive at 125 is advisable to wash the belts from time linseed before grinding, of a quantity of

> THE EUROPEAN WHEAT CROP.—The fol-Vienna Seed Congress on the European wheat crop in the form of percentages or conditions for the various countries. As as Germany, and in that particular the 71,527,116 bushels as compared with the average for the five preceding years. The details are as follows:

	1	888	1889			
COUNTRY.	CONDITIO	ON. BUSH'LS.	CONDITION.	BUSH'LS.		
Austria .	. 107	38,738,700	83	30,049,646		
Hungary .	. 110	136,871.064	72	89,588,833		
Germany.		68,112,000	88	66,895,070		
Denmark.	. 80	4,824,600	100	6,030,750		
Norway Sweden	• 95	4,420,870	95	4,420,870		

FROMENTINE-A NEW WHEAT PRODUCT .-Dr. Dujardin-Beaumetz recently exhibited stones. Fromentine is the embryo of wheat reduced to flour, and deprived of

tion of sugar. Thus the amount of nitro-genous matter in it is 51 per cent., while that of the richest meat, mutton, is but 21 per cent., and the proportion of digestible substance reaches 87 per cent. of the total weight. Hence it would appear that it might advantageously replace powdered meat Concerning bolting with centrifugal pass between the rolls. This is a success- as a concentrated food. It can be

ing biscuits, the taste of which would not be disagreable. The wheat germs emand is applicable to any of the different ployed are a by-product in the Schwietzer sizes of the leading roller mills. By its process of manufacturing a flour which use considerable time is saved in adjust- can be kept for a long time without dete-

ANOTHER FLOATING EXPOSITION .-- A monster floating exposition is reported being organized in Germany. Its object is to provide a large vessel-perhaps the largest afloat-fill it with exhibits of German industry, and send it from one port to another around the world, stopping and exhibiting where necessary. The plan of operation is thus described: The giant steamer Kaiser Wilhelm will be built at Kiel. She will be 570 feet long, 70 feet broad, and her depth will be 45 feet. She will contain eight immense exposition halls, with galleries and pavilions for separate exhibits. Passenger elevators and other conveniences will be provided. It will be a permanent institution, starting from Hamburg or Bremen every two years and touching every port of consequence in the world. The Floating Exposition Palace will exhibit exclusively the works of German manufacturers. The scheme is to bring the products of German industry directly to the notice of importers in foreign countries, and this at a small outlay. The exhibitors are asked to pay for every Milling Association the minister of justice exposition port \$1.25 for the cubic meter space their goods occupy. The goods will ing a stop to the mixing of any substance be placed in such a position and so thoroughly fastened that the movements of the vessel will not disturb or damage them. They may be changed or added to in every port. The company will take upon itself up to be mixed with flour intended for to introduce them to merchants of foreign countries, or a representative of the firm ADULTERATED LINSEED .-- A new method exhibiting goods may accompany the

OUR BALTIMORE LETTER.

A Sparkling Communication full of interest to Some peculiar features of the Baltimore Flour Trade explained, etc., etc.



BOMBSHELL thrown into the Baltimore flour market could not have produced a greater sensation than did my letter of a month

The revelations which it contained caused intense excitement throughout the trade, and brought a demand for the UNITED STATES MILLER which seemed impossible to satisfy.

It is true that a few sore heads, actuated by jealousy or some motive equally honorable, denounced the letter in scathing terms, but the great bulk of our dealers not only warmly commended it, but also fully endorsed every sentiment it expressed.

The truth, you know, hurts, sometimes, and that, no doubt, is why certain ones in our midst winced and squirmed so when they saw for the first time such startling facts presented in cold type. It was a bitter pill for them to swallow, we admit, but they should hereafter learn to take their medicine in a more amiable frame of mind. It is not my desire or purpose to offend any one, but, at the same time, I want it distinctly understood that I cannot be deterred one iota, either by threats or any thing else, from doing my duty in this capacity at any cost. I shall therefore openly, fearlessly and unequivocally point out and discuss abuses existing in the trade, respectfully challenging those who may differ with me to a contradiction in these columns. With these preliminary remarks I will now pass to the subject under consideration this month, namely, the pernicious system of discounts in vogue here.

Millers throughout the country very naturally enquire from time to time why it is that they cannot obtain prices for their product in this market approximating at least those current for such brands as "Patapsco Superlative," "Snow Drop" and "Jamestown." The reason is obvious to those on the spot, but an exceedingly difficult thing for an outsider to understand. I will endeavor to explain.

The quotations of these and other local brands, which appear in the press, are simply the gross list prices to the trade, and do not represent at all the figures they are bringing in a wholesale way. For example, take "Patapsco Superlative Patent," which is quoted to-day at \$5.60 a barrel, and let us see what it is really selling for in round lots: If a dealer buys 10 barrels of this flour in the current month he is entitled to 10 cents per barrel rebate; if 15 barrels, 15 cents; if 25 barrels, 25 cents; if 100 barrels, 30 cents.

Then an additional five cents per barrel is allowed for drayage, where the buyer hauls it himself. And then again, in instances, a small percentage is deducted for cash.

A customer is not compelled either to engage these amounts in a lump in order to obtain the stated discounts, but on the contrary, he can buy a barrel at a time, and at the end of the month receive his proportion of drawbacks according to his aggregate purchases.

So then instead of "Patapsco Superlative" bringing\$5.60 a barrel as appears upon its face, it is really selling at \$5.25 to the man or combination of men who contract for 100 barrels of it a month. The same rule precisely is carried on too by the proprietors of the "Snow Drop," "Jamestown" and other leading stencils.

The system is pernicious in that it is misleading, and smacks too much of the Cheap John, Harrison street style of dealing to merit commendation.

The Baltimore flour market has ruled weak and lower since my last review, but at the decline business has revived, and at this writing considerable activity prevails. Jobbers have allowed their stocks to become duced to the minimum, but are now taking advantage of current rates to augment them. Standard St. Louis patents are held at 4.90, with sales at slight concessions from these fligures. Straights from the same point, however, are less exhorbitant, going in instances as low as \$4.25.

Ohio, Indiana and Illinois mills are less pretentious in their views, and are consequently getting the bulk of the winter wheat orders. Patents from these localities range from \$4.60 to 4.85; straights from \$4.10 to \$4.25; and clears \$3.90 to 4.20.

The product of near by mills however, while inferior to that of the West, is selling correspondingly. Many of our dealers will invariably buy a low-priced article, irrespective of quality, in preference to a relatively cheaper one. These gentlemen have a wonderfully accommodating constituency, that will take any thing that they see fit to give it. It has been educated that way. The prices for such qualities range from \$4.50 to \$4.70 for Patents; \$4.00 to \$4.20 for straights; and \$3.80 to \$4.00 for clears.

The grades most in demand here at the moment are fancy patents at \$4.75; straights condition.

at \$4.20; clears at \$4-00; and extras at 3.75. They must be exceptionally choice, however,

to command these figures. Little or nothing is being done in low grades 2 at the moment. Spring wheat patents have had a big tumble within a month. Those from the new product have made their appearance and have caused the break in prices. The quality of the new, promises to far surpass that of the old, but most of our dealers are afraid to use that of the former exclusively until it has become more thoroughly seasoned. The consequence is that old wheat patents are in request now at a premium over the new, but are becoming exceedingly scarce, notwithstanding. Some large sales of Minneapolis old wheat patents have been effected here recently at \$5.15 a barrel.

Country mills are offering those from the new as low as \$4.75, with sales at that figure. Standard Minneapolis brands however, are generally held at \$5.00, but nothing can be done with them here while just as good can be bought for less money. The woods are full of spring wheat patents, and at all kinds of prices, but it is safe to quote the range of the new and old from \$4.75 to \$5.15.

A cross-roads mill is selling patent here in sacks at \$4.60, for which it wants \$4.90 in wood. A difference greater than is usually allowed.

Spring bakers' have been in active demand, and some heavy business has been transacted in them at about \$3.65 for standard brands. Quotations for the new and old range from \$3.25 to \$3.65.

City mills report trade as very slack, especially those making Rio flour exclusively.

There is nothing whatever doing here for

The estimated stock of flour in Baltimore to-day, in round numbers, and exclusive of that held by city mills, is 45,000 barrels. I quote the range of the flour market, as follows:

١	Western	Winter	Wheat	Super	8	2.50	@\$		
١	** 6800111	**					@	3.75	
١		**	**	Famil	y	4.00	@	4.50	
١	Winter V	Vheat P	atent				@	4,90	
1	Spring	**	"			4.75	@	5.15	
1	Spring	. 44	Straigh	t		4.00	@	4.75	
		**					@	3.65	
	Doltimo	no Rest T					@		
	Bartimo	Choice				5.45	@		
		High (Frade Fr	mily.		5.35	@		
		Choice	* E	ctra.		5.10	.0		
	Monelan	d Virgi	nia and	Penns	. Super.	2.50	@	2.75	
;	Maryian	44		**	Extra	. 3.00	@	3.75	
•	**	**		44	Family	4.00	@	4.50	
•	City Mil	le Super						2.50	
,	City Min	(Pio Pre	ands Ex	tra'		. 4.40	@	4.62	/3
3	Des Mo	(RIO DI	ando Ma			. 2.75	@	3.00	
9	Rye Fio	ur		+ hoa	been in	a de	nlo	rabl	6
3						to ac	Pic		
	condit	ion for	some	time	past.				

Values have rapidly declined until cash

wheat in Baltimore has ruled 6 cents per bush. below the figures current in New York for the same thing.

It is not because of a glut, for there is only about 400,000 bushels of contract wheat in the elevators. Neither is it because of the poor quality of our grade, for it takes a mighty good article now to pass the standard. Well, what is it then that keeps us so much below the other markets of the country?

Without mineing matters I will tell you. It is the pure "cussedness" of our traders, and nothing more. They are all bears, with hardly an exception, and, consequently are short up to the neck all the time. They kick and pound this market out of shape, hoping thereby to influence values elsewhere. It is positively alarming to witness their audacity.

It is their old game, though, and yet they have the gall to ask for lower freight rates from the west on grain!

A market unable to obtain within 6 cents per bushel of what her rival is getting should have no rates at all.

Many of the men who operate in grain here sell on every rally, and then sit round like bumps on a log until the deal shows a profit, a complaint with the interstate railway when they take it in, and squat again, preparatory for another "flyer." are generally successful fellows, and most always operate on the bear side.

The receipts of southern wheat have fallen off to almost nothing while the condition continues equally as poor.

Every body here expects a big movement in wheat all over the country shortly, and also anticipates its going at low figures.

This sentiment is too general to be verrified, however.

I am rather skeptical about that movement panning out the way it is being pictured to at the East of 43 cents per 100 pounds, us. There is too much anxiety for it to be so to suit me

I invariably believe in coppering one sided opinions like that. Owing to the scarcity and firmness of ocean tonnage, very few clearances have been made, but every indication points to a good business in the near

Millers experience great difficulty in obtaining proper selections for immediate grinding, and are now turning their attenwestward for supplies.

The extreme range of prices to-day for sample wheat was 40 @ 85 cents all as to

STOCK OF GRAIN IN E	LEVATORS THIS DAT.
CORN.	2 Red winter405,889
1 White 1,499 2 183,442 Yellow 2,624 Mixed 301,558	3 4,757 Stmr. 2 red winter. 91,393 "3 winter. 497 Mixed 774 Special Bin. 457,722
Steamer White 6,133 " mixed 2,306 Special Bin 16 751	** 18881,206,291

Total.....514,313 1888..... 54,485 CLOSING AND COMPARATIVE PRICES.

95 @102 100 @103 CLOSING AND COMPARATIVE PRICES. Same time

Mixed. Closing
To-day.
Spot. 40½@40½
September 40½@40¾
October 40¾@41
Year 39½@40½
Steamer. @
White. 40
Yellow 653 46 % @47

ITEMS OF INTEREST TO THE TRADE.

The Baltimore Corn & Flour Exchange closed its rooms on the 9th and 12th of Sept. to give members a chance to enjoy Exposition ceremonies

Robt. A. Galt, millers' agent of Baltimore has returned from a brief visit to Minneapolis and Duluth.

Harry A. Belt, millers' agent of this city, has returned from a visit to Virginia.

Andrew J. Palmer, of Wilson, Palmer & Co., wholesale flour and grocery dealers of this city, is back to his post again, after a most delightful visit to the White Sulphur

Among the floats in the trades display last Monday, none were more unique and attractive than those of the C. A. Gambrill Mfg. Co., E. N. Gardner & Co., Peter New & Co., and Rinehart, Childs & Co.

The special edition of the Baltimore Journal of Commerce is a very handsome affair indeed, and reflects great credit upon editor Shannon. Gen. John Gill, formerly head of the firm of Gill & Fisher of this city, has returned to Europe where he will meet his family and spend sometime in continental travel.

Harry A. Wroth, statistician of the Corn & Flour Exchange has returned from his Eastern Shore trip.

Edward J. Snow carries his 60 years remarkably well.

James Knox of New York, formerly a leading grain exporter of Baltimore paid us a brief visit last week.

Conrad Ruhl, Sr., is gradually giving up his flour business to his boys Henry and Conrad, Jr.

L. Sinsheimer is improving every day from his recent European voyage.

Peter New & Sons, wholesale flour and grocery dealers of Baltimore, are about the busiest merchants we have at present.

John F. Blake, miller of Canton, Ohio, was on change yesterday for a while. He is about to establish an agent here.

President Wm. F. Wheatley is very much elated over the success of his journal.

J. Olney Norris, proprietor of the Monitor mill of Baltimore, has embarked on a voyage around the world and expects to be gone a

The C. A Gambrill Mfg. Co., is refusing offers daily for their celebrated "Chesapeak" flour which would make competitors in the Rio trade turn green with envy did they but ORIOLE. know them.

Baltimore, Sept. 12, 1889.

HERVEY BATES, who is operating the Indianapolis, Ind., hominy mills, has filed commission, charging discrimination by the Pennsylvania Railroad Company against his business. The complaint says the defendants now charge as freight on corn from Indianapolis to New York City 18½ cents for 100 pounds weight, at the same time charging and collecting as freight on ground corn, cracked corn and corn meal, grits, hominy and refuse at the rate of 23 cents per 100 pounds, thereby affording a direct advantage to the miller and placing upon the complainant a consequent loss.

HALF RATE HARVEST EXCUR-

Will leave Chicago and Milwaukee, via the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY for points in Northern Iowa, Minnesota, South and North Dakota, Montana, Coloado, Kansas and Nebraska, on August 6 and 20, September 10 and 24, and October 8, 1829. Tickets good for return passage within 30 days from date of sale.

For further information, circulars showing rates of fare, maps, etc., address A. V. H. CARPENTER, General Passenger Agent, Milwaukee, Wis.

American Steam Guage Co.,

WITH LANE'S IMPROVEMENT.

000000000000000000000



THOMPSON'S

Over 2,500 in Use. 0000000000000000000000

American Pop Safety Valves.

For Locomotive, Stationary and Portable Boilers, and Instruments Incidental to the use of Steam. Send for Price List I.

36 Chardon St., BOSTON, MASS.

Send for Catalogue K.

AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFAC-TURERS OF AND DEALERS IN MILL AND ELEVATOR MA-CHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U.S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, \$1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description.

[Mr.89.]

C. Ritter, Sta. A., Springfield, Mo., Patentee and Designer, Ritter's One Reduction Milling System.
Full Roller Plants for small mills. [Aug. 10]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr. 89.] Robert Poole & Son Go., Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

B. H. & J. Sanford, Phoenix Iron Works, Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr. 89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mig. Co., 159-161 Lake st., Chicago, Ill., Belting and Rubber Goods. [Mr.89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters. etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., W. D. Allen & Co., Agents, 151 Lake Street, Chi-cago. [Apr.89.]

W. G. Avery M'fg Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Buckets, B

The H. J. Deal Specialty Co., Bucvrus, Ohio. Head-quarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades. [May 89]

A. B. Bowman, 823 Second St., St. Louis, Mo., manufacturers of Wheat Heaters.

Sprague Electric Railway & Motor Co., 16 and 18 Broad St., New York. Electric Motors. Electric Transmis-gion of Power. sion of Power.

Stilwell & Bierce Mfg. Co., Dayton Ohio. Mill Builders, Manufacturers of and dealers in Water Wheels, Feed Water Heaters and Flour Mill Machinery and Supplies.

Milwaukee Bag Co., No. 236 East Water St., Milwaukee, Wis., manufacturers of plain and printed Flour and Grain Sacks of all kinds.

B. F. Ryer, 66 S. Canal St., Chicago. Mill Furnisher. Bolting Cloths made to order. Jas. Leffel & Co., Springfield, Ohio. Water Wheels.

Vacuum Oil Co., Rochester, N. Y. Oil

CAWKER'S AMERICAN FLOUR MII

GRAIN ELEVATOR DIRECTOR

1888-9 Edition, Issued March,

PRICE, SIG PER GOPY

E. HARRISON CAWKER, Milwaukee, Wis-

OUR ENGLISH LETTER.

(From our own Correspondent.)

LONDON, Sept. 3, 1889.

The wheat which was gathered in during the first three weeks of the month of August will not be fit for threshing until Christmas. This is due to the unsettled weather that has prevailed. The rainfall has been excessive: the winds and gales have been of equinoctial violence. The temperature has been below the average 49 degrees, by accumulation, being lost on the month, and the mean daily temperature being only a small fraction of a degree over 59 degrees at a station when the August average in twenty-five years has been 61 degrees. The light has been uncertain, the nights damp and chilly. The climax of misfortune was reached during the week ending August 24, when probably about half the corn in the country was standing in shocks, or being in swaths in the fields, while the rain poured down day after day. The wheat sheaves were soaked through over and over again. We have had during the past few days a great improvement in the weather, with the result that the scared and harrassed wheat growers of the United Kingdom are now pulling themselves together, on the one hand to secure the large quantities of wheat still unharvested, and on the other to form some estimate of the damage done. It is somewhat curious, too, that with all the unsettled weather the market of the United Kingdom has been motionless during the past month, decline and advance meeting with equal resistance. A quantity of American flour which has been warehoused outside the Docks has been sold during the past week at a slight advance, and a quantity of English country flour has helped to make the Mark Lane market steady. There can be little doubt that if the Dock laborers' strike had not occurred, the prices of wheat and flour on Mark Lake market would be at this moment a shilling The great Dock strike has not lasted twenty-two days, and the laborers are still agitating for 6d in place of 5d an hour for ordinary time, a certainty of four hours' employment per day when engaged, the abolition of all contract work, which would mean that the Dock companies would be compelled to engage a number of foremen and overseers at permanent wages, and the division of what is termed the "plus" earned when a vessel is cleared in less than the stipulated time, in equal shares among men and foremen. To all these terms the Dock directors are willing to agree, except in so far as the extra penny is concerned, and so there is no prospect yet of a settlement. In the meantime the business of this great port is in a condition of complete stagnation. Thousands of quarters of wheat are lying in the vessels in the river, almost within touch of the flour mills, and yet not a kernel can be had to replenish the stock of foreign grain that is running short in nearly every large mill. Three mills, which together grind over two sacks of flour of 280 pounds each, per hour, are shut down, and by Thursday next, if wheat cannot be got from the river, more than half the mills in London will have to close down. Unfortunately for the London millers, the dissatisfaction is spreading among their own men in the mills. For example, Messrs. J. & H. Robinson, who carry on a milling business at Deptford-bridge mills, employ about forty hands, all badly paid, according to trade rates, the majority earning about 21s a week. All of them, except eight, signed, in the form of a "round robin," the following humble petition to the

"We, the undersigned, in your employ, do humbly beg of you for an increase of wages, namely, 2s per week. Waiting for your reply, we remain your humble servants."

The reply of the firm was: "No alteration in wages can be made at present," and written at the foot of the petition was this sen-"Tell the men whose names are marked out, that we shall not want them after to-night." Twelve names were scored They have not yet been disthrough. They remain on at a minutes' charged. notice.

As nearly as can be estimated, the Royal Agricultural Society loses from £5,000 to £6,000 by the Windsor show, owing to the enormous expenses of that historic gathering. Against this disaster may be set the increase of 2,752 in the membership, due to the eclat of the jubilee year of the Queen's presidency. The total number of governors and members is now 11,231. The announcement that the fifty-first meeting will be held at Plymouth next year has been already

Mr. Henry William Neville, who for more than half a century was a master baker, died on Sunday, August 18th, at Ramsgate. Like many other men, who afterwards attained to wealth, Mr. Neville made a false start in life,

a dinner. Each guest found under his cover a cheque for the balance due, with the interest up to date. Mr. Neville is said to have been offered and to have refused £800,000 for his business a short time before his death. The late Mr. Neville established in the northern. eastern, western and southern districts of London respectively a bread factory of practically unlimited capacity. These great establishments, taking one year with another, consumed on an average over three thousand sacks of flour per week.

The International Congress of Millers in Paris is now a thing of the past and from what I hear from a miller who was fortunate enough to be present everything seems to have passed off very satisfactory. At the first meeting in the British Section Mr. R. H. Appleton was elected President of the National Association of British and Irish Millers for the ensuing year. In the afternoon of the first day Mr. Carnot, the President of the French Republic, visited the congress. On the second day three papers were read at the English meeting. The first was by Mr. Frank Ashby, entitled "Observations on the color of Wheaten flour con-

turer and the merchant." The second paper was contributed by Mr. Henry Macdonnell on 'Minor Milling Matters" and the third was by Mr. J. Murray Case, entitled "Turning Points in Scientific Milling.' The third day was given up to an International meet, at which the gold medal for Technical Education was awarded by the National Association of British and Irish Millers to R. W. Voller, of Gloucester. Medals were also distributed by the French Millers' Association to four of their journeymen millers for long service and good conduct. In the evening the Congress was brought to a close by a superb banquet. M. Yoes Guyot, Minister of Public Works, presided, having on his right Mr. Appleton and on his left

the ostensible author of the felicitous phrase After the desert M. Guyot spoke in eloquent terms of the millers and their mills. "If all these buildings were pulled down," said M. Guyot, "Humanity would be in a sad plight. suffice for the alimentation of the whole country, and in the name of all those who eat bread I drink to their preservation and utility!" The toasts were received with fastened on the shaft in boot by set-

International applause, the Anglo-Saxon acclamation, or as the French call the "Hourras" predominating in sonority above the Vivats of the French, Belgians, Spanish, Roumanians and Italians. The toast of the English millers was then given by a French miller in very good English and not one miller of the whole 100 present could reply to that toast in French much to the disgust and humiliation of my informant who is a miller and was also present. After the banquet the millers with their partners footed it beautifully on the first floor of the Palace de l'Industrie to the sound of a

Waldtenfel orchestra and nobe

home until the morning star was due. A London Bread Union is being formed, and will shortly appear as a limited company. The undertaking so far as the metropolis is concerned, will be arranged similar to the "Salt Union," nearly 300 of the bakeries controlled by the Association of Master Bakers in each district having been absorbed in the scheme, and whose net profits run not far short of £100,000 per annum, which, of course, under one management, would be greatly augmented, while the combination would help to maintain a remuneration price. In my next letter I shall be able to tell you more of this scheme.

I must not close this letter without giving a few details of what the condition of wheat is supposed to be like in the various countries. A quantitative estimate for the world is altogether premature at present. What is known of the general character of the harvest renders it almost certain that the world's wheat crop is smaller than that of last year. The and the gist of them may be given as follows:-Russia, very poor; Roumania, defi-

He then invited each of the creditors he had many and Italy, below average; Denmark, been obliged to pay but partially, to come to much below average; Holland, below average; Belgium, about an average; France, Spain and Portugal, above average; the United Kingdom, slightly above average, though probably only a bare average of marketable grain after the recent wet weather; the United States, a good crop; Canada, about an average; South America, very deficient; India, below average. The countries which have wheat crops better than those of last year are France, Spain, the United Kingdom, possibly Belgium and Italy, the United States and possibly Canada; while those which have worse crops are Russia, Roumania, Montenegro, Austria, Hungary, Germany, probably Holland, South America and India.

L. MAYGROVE.

A NEW ELEVATOR BOOT.

N many establishments, such as grain elevators, malt houses, cotton-seed mills, etc., etc., the location of elevator boots is such as to make them difficult to get at and more difficult to oil than any other part of the machinsidered from the standpoint of the manufac- ery. Sand, dust, grit and fibre surround-

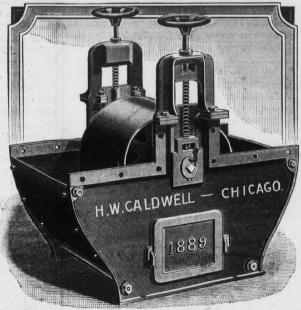
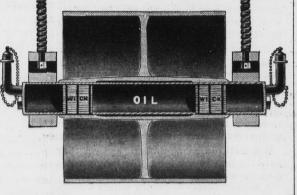


FIG. 1.

La Republique Aimable" M. Dubray. ing these boxes on outside of boot would contaminate the oil, cutting the journal bearings so as to cause the pulley to wobble, throwing the belt to one side Here in France our 3,000 millers would thus often ruining the belt and sometimes' causing fire. The usual plan of constructing elevator boots has been essentheir health! Let me also drink to practical tially wrong. The pulley is generally





run in babbitted boxes, subject to the troubles above named. H. W. Caldwell, 131 and 133 West Washington Street, Chicago, has had thirteen years' experience in elevator work, and has now invented a newly constructed elevator boot that meets with the universal approval of all elevator users. The construction is shown by cuts. The shaft is hollow and preferably brass; it is held stationary; the pulley has a long hub, the hub being filled with oil; slots are cut in the brass cylinder where the hub has bearing; in these slots fits tightly a heavy cotton wick, made of cotton belting, and the oil is fed through this wick to the revolving list of recent reports is now a pretty full one, hub. The pulley hub is chambered out so as not to touch the shaft except at bearings. This reservoir holds sufficient of the most famous passenger steamer of the Mississippi is yet over. In fact, we do not consider that is has yet. for his first venture ended in bankruptcy. cient; Bulgaria, moderate; Montenegro, a bearings. This reservoir holds sufficient In fact, we do not consider that is has ye the tried it again and soon became wealthy. failure; Austria and Hungary, bad; Ger-oil to run three to six months, and no arrived.—"New Orleans Times Democrat."

sand, grit or fibre can get to the bearings. The pulley is adjustable up and down by means of hand screws, as other ordinary boots are. These boots are also so constructed that the ends can easily be removed in case of accident, and hand holes are so arranged that if there is a choke up they will lift out of place easily. These boots are meeting a very ready sale. as prices are but little more than the old style, troublesome boot.

MILWAUKEE ITEMS.

THE MILWAUKEE BAG COMPANY has built up a great business in its line which reaches all over the North-western, Central, Western and Southern States. They are crowded with orders and have established a reputation for square dealing and promptness which has commanded suc-

THE representatives of the Three Americas, who will visit Milwaukee on the 23d of next month, will be given a proper reception and afforded an opportunity to see some of the many things which Milwaukee possesses. The occasion will probably wind up with a Plankinton House banquet.

THE 23d Grand Army Re-union in this city passed off successfully in every sense of the word. The lowest estimate is that 162,000 visitors were brought here by the railroad and steamboat lines. The Naval Battle was pronounced grand by all but a portion of the spectators whose view was spoiled by clouds of smoke.

MILWAUKFE mills have been doing a fair trade during the past month, but have not been crowding production. The Jupiter Mills are not yet ready to start up. The Phœnix is temporarily shut down, owing to a breakage of the engine. Very soon, however, it is probable that all the mills will be running full time.

THE WISCONSIN STATE FAIR opens Sept. 16 and closes Sept. 20. Several acres of machinery will be kept in motion by ponderous engines. The mammoth exhibition building will be filled with the latest purchases of Milwaukee merchants, by the handiwork of women, the life-like pictures and charming landscapes of the artist's brush and pencil. The rarest flowers, the choicest fruits, the housewife's snow-white bread and toothsome cakes and jellies. The farmer, gardener and dairyman will exhibit the result of their winter's thought and summer's work. The greatest potato man of America (Harrington of Delavan,) will be there, exhibiting between seven and eight hundred varieties of potatoes and explaining how best to grow them.

MISSISSIPPI STEAMBOAT INTERESTS.

The statement was made by our river editor a day or two ago that steam navigation now in the great river of America extended in the main steram alone for the enormous length of 4,429 miles. That is, that a steamboat had gone above Fort Benton to the Great Falls of the Missouri. 3150 miles above the mouth of the river screws or key-seat, and the outer ends and 4429 miles above the heads of the Mississippi Passes. We are glad to be able to say that the Mississippi steamboat interests and river commerce generally have been looking up considerably this year; that they have done better than for seven or eight years. There are false prophets who have said that the railroad lines of the country would kill the steamboat and barge interest of the Mississippi River. They will never kill the passenger travel or the freight transportation of the Mississippi as long as steamboatowners build fine, fast and safe passenger longer than the face of pulley; the pulley boats, and as long as cheap freight rates revolves on the shaft; the cylinder is can be had by river, which will be as long as the great river flows on down from the mountains to the sea. Comparative safety to travel and cheapness of freight may in the early future lead to a modification in the construction of both passenger and freight boats and their division into separate classes as far as possible. We do not

WHY WE BUY AMERICAN FLOUR.

BY W. A. THOMS.

HY buy American flour?" you ask in July issue, and suggest bakers should substitute Hungarian flour, which is cheap, for spring American patent, which is dear. While that was so when you wrote, it is not so now; adverse crop reports have sent Hungarian up several shillings per sack, while the near prespect of a good harvest in America has taken some shillings a sack off, with still lower offers for forward delivery. The high price of U. S. spring patents is, or rather was, due to exceptional circumstances that are not likely to recur, such as a damaged and short harvest of spring wheat last year, and the cornering of the most of that kind of wheat that was fit for milling by Minneapolis millers and speculators. The speculation has not been encouraging or profitable, and the "cyclone" in prices of flour and wheat, so confidently predicted by the leading cornering bulls, is as yet unfulfilled. Comparatively little spring patent has been sold at the high prices asked for it. Immense quantities were purchased last year, before and during the rise in price, by bakers, millers, and flour agents and importers. The importers stored their purchases as they arrived to await expected higher prices, while the bakers used up their purchases sparingly. When the bakers required more of the same kind they did not take the dear stored importers' flour, but Russian spring patents, or patents from gristed wheats, local milled, or American winter patents, and Hungarian-all much cheaper. The importers' flour stored at the end of last year, and offered at 42s. and 42s. 6d, per sack, is now being pressed on bakers at 35s. and under, and nothing save widespread disaster to the unharvested wheat will prevent spring patents being sold in a short time under 30s. per sack. These patents are a small proportion of the flour we receive from America, and we use them for the bulk and pile they give to loaf bread. Hungarian can only to a limited extent replace them, owing to the low yolume and inferior pile it causes. Hard U.S. winter and Russian are better, and largely used, while they are cheaper than Hungarian, and generally quite as strong. With the fall in price of Hungarian there has also been a decided fall off in quality, and, save from a few mills, a fall off in strength. It is more largely composed of soft wheat than it used to be. Hungarian and spring patents are used for fancy and first quality of breads, and these bear, after all, a low proportion of the total bread required—not over onefifth. The other four-fifths is composed imports of American flour this year have been almost exclusively confined to these Central Union Depot, Cincinnati. grades of spring and winter. Their price has been reasonable, though the quality COMBINED ROLLER MILLS AND SIEVE has only been fair. As only from a very few of our own millers can we get these grades and varieties of flour separate, or, when we do get them, of so good value as the American, and further, as we do not have these kinds and grades from Hungary, that is why we buy American flour. We like it, find it good value, and cannot at present buy similar kinds and grades elsewhere.

As to the best methods of manipulating Hungarian flours, the difficulty with bakers is not there, but in the price obtained for the four-fifths of loaf bread, which must be composed of medium and inferior grades of cheap flour. Hungarian, cheap as it is, is relatively dear compared with these. Bakers generally are aware that Hungarian is a doughing flour from winter wheat-that it must not be used in a sponge taken on the second turn, but may be used in half, quarter, or whole sponges taken on the first turn and the proportions used vary from one- of trays set on an ascending incline in a

for crusty or pan bread, one-half may be shaft and check-lever. As the product from used or even three-fourths. If for close-the roller mill falls on the silk the forward packed crumby, not more than one third stroke throws it up and forwards, and at is desired - The British and Foreign Confectioner.

TRADE NOTES.

WE have received from Messrs. Thornburg & Glessner of Chicago, a copy of their new catalogue. It is well executed and deserves a place in the files of every miller and millwright.

F. W. Howell of Buffalo, N. Y., announces that he will continue the business of Hodges & Howell, and will furnish new cockle machines or repairs toold ones.

THE H. J. DEAL SPECIALTY Co., of Bucyrus, O., quite overwhelm us with a list of names of parties using H. J. Deal's Clipper Baking Test and Deal's Standard Improved Grain Tester. This list shows a great many names of the most prominent milling and grain elevator firms in this country and quite a number from abroad. We are pleased to note that this firm is doing such a prosperous business.

GOODYEAR RUBBER Co., 372 and 374 East Water St., Milwaukee, are making a specialty of Belting of all kinds and mill supplies. They are exclusive agents for Schieren & Co.'s Electric, Perforated Planer, Extra Short Lap and Standard Oak Tanned Leather Belting. There are places where these special belts will do better service than anything else made.

They also have a full stock of their celebrated GoldSeal Rubber Belt which is as good as anything can be made of rubber, and Packing of all kinds. They are also paying special attention to Hose and

carry a complete stock of their Gold Seal, Extra and Standard grades in all sizes. There is nothing in the rubber goods line which this company cannot furnish and the prices in Milwaukee are the same as made in New York.

MEETING OF THE ARMY OF THE CUMBERLAND AT CHATTANOOGA.

For meeting of the Army of the Cumberland a Chattanooga, September 18th and 19th rate of one fare for round trip \$9,75, will be made from Cincin-nati, tickets sold Sept. 12th to 16th, good for return to Oct. 10th, via the Queen and Crescent Route. This is one of the grandest scenic lines on the continent passing as it does through the beautiful blue gras region of Kentucky, crossing the famous High Bridge, which spans the Kentucky River at an eleva-tion of 285 feet above the channel, passing through the pretty towns of Lexington, Danville, Nicholasville and the fruit counties of Lincoln and Pu aski. In the mountains at Point Burnside where the line crosses the Cumberland River, the scene is one of of straight and bakers' grades, and our picturesque grandeur beyond description. This is the only direct line running entire trains through without change. Three Express Trains daily leave

SCALPER.

aware of the encroachment upon their business which is threatened as a result of sharp competition in burning the hornets nest but his barn, abroad, and especially from this country, the English millers have sought the most effective remedy, to wit, the improvement of their own mills and milling methods. One of the establishments which has become noted for its enterprise in the construction of improved flour-mill machinery is that of Mesers. Greenwood & Batley, Limited, proprietors of the Albion Works at Leeds; and in the accompanying engraving is shown one of their recently designed machines, in which a sieve scalper is combined with the break rolls for small mills, where space is of great importance. The "Compactum" roller mill (Buchholz's patent is the one here employed. The illustration, which is reproduced from The Miller, represents a combination of two when sufficient yeast is used to work roller mills on an iron frame, with two scalpthem off rapidly, or in doughing direct, ers below. The scalper consists of a series

the succeeding stroke the falling meal meets the sieve at right angles and the fine particles are driven through the silk. In each of the roller mills shown in the illustration there are two rolls. The bearings of the bottom roll are adjustable, and the bearings of the top roll are fixed. A lever working on an adjustable ball and socket bearing carries an idle pulley on either end. A shaft fixed on the top of the frame of the machine, on which is fixed the driving pulley with a pulley at either end, completes the motive power, which is communicated to the pulley on the rolls by link belting, as shown in the illustration.

The two belts on each side of the roller mill are so arranged that as they pass round the idle pulleys on the balanced lever, any

COMBINED ROLLER MILLS AND SIEVE SCALPER

undue strain coming on one side is immediately taken up by the other, thus securing the same pressure on both ends of the roll. These belts are tightened by means of a hand-wheel and screw, which communicate with the ball and socket bearing of the lever, raising it, or vice versa. By an unique arrangement, the distance between the rolls can, it is said, be adjusted to such a nicety that each division of the wheel represents one three-thousandth of an inch movement between the rolls. By this adjusting arrangement each end of the roll can be moved closer or vice versa, and when once the equal distance at each end has been obtained, both ends of the roll can be put into gear with the adjusting shaft, so that the one movement of the adjusting arrangement moves both ends of the rolls at once and to the same extent.

GEO. RUBRIGHT, a farmer, near Greensburg, Pa., went into his barn and got stung by a hornet. Discovering AVING long since become the nest he concluded to take revenge to burn the nest. He not only succeeded containing his entire harvest valued at

Moral-Never monkey with a hornets

RECENT PUBILCATIONS.

"HINTS ON HOUSEBUILDING" is the title of a neat little book issued by the Practical Publishing Co., Room 49, No. 21, Park Row, New York City. Price 50 cents.

"UNPARDONABLE SIN" is the title of a new and exciting novel written by Arthur Dudley Vinton, an American author of considerable real merit. It is issued from the press of J. S. Ogilvie, New York, in a 25-cent paper-covered volume.

PRACTICAL BLACKSMITHING is the title of a book just issued by M. T. Richardson, New York. This book is made up of a collection of articles covering the whole range of blacksmithing from the simplest job of work to some of the most complex forgings. Its price

fourth to one-half of the total flour; if strong frame, and worked by an eccentric is one dollar, and it can be secured of the publisher postage free.

> THE Practical Publication Co., of 21 Park Row, New York, have just issued the "Engineer's Hourly Log Book," arranged to record for each hour all essential points, such as boiler pressure, fuel fired, quantity of steam, etc. It is a useful book for the educated practical engineer.

THE publishers of St. Nicholas, announce that that popular children's magazine is to be enlarged, beginning with the new volume, which opens with November, 1889, and that a new and clearer type will be adopted. Four important serial stories by four well-known American authors will be given during the coming year.

DURING the coming volume The Century is to have an illustrated series of articles on the French Salons of the seventeenth and eighteenth centuries, including pen portraits of many of the leaders and a detailed account of the organization and composition of several historical salons. A great number of interesting portraits will be given with the series.

THE Art Amateur for September is one of the most attractive numbers we have seen of this thoroughly practical art magazine. Theodore Child has a critical review of Decorative Art at the Paris Exposition; and "Montezuma," in his "Note Book," gives some curious facts about the "Angelus" and other pictures. The colored plates are, as usual excellent. Montague Marks, Publisher, 23 Union Square

THE advance sheets of the introduction of that useful work, the Messrs. Poor's Manual of Railroads of the United States for 1889, indicate that the publication will in no way fall behind its reputation for voluminous detail. The statistical matter drawn from the data contained in the forthcoming issue may be fittingly reserved for further consideration. As an annual publication the utility of the Messrs. Poor's enterprise has long been recognized. The growth of the railroads system, which it has recorded from year to year, widens its field of usefulness.

SCRIBNER'S MAGAZINE for August contains spirited out-door papers on the game of lawn tennis and on tarpon fishing; two papers on Tennyson, whose 80th birthday is thus commemorated; short stories by H. H. Boyesen. Brander Matthews, George Parsons Lathrop, and E. C. Martin, a new writer, and valuable additions to the electric and railway series. "Form in Lawn Tennis," by James Dwight, M. D., treats of the game from an entirely new point of view, using instantaneous photographs of the Sears Bros. and Petit, three noted players, as a basis of a more accurate analysis of the principal strokes in the game.

Prof. Henry Morton takes the reader with him into the great factories where dynamos and glow-lamps are made. Benjamin Norton describes the purchasing and supply department of a large railway system.

A. C. LORING, the Minneapolis, Minn., miller, puts the matter in this way: The control of some of the mills by an English syndicate could have no possible effect on prices even if the whole state was in the combine. A quarter of our flour is now exported, but it was demonstrated last fall that if prices go too high England will not buy American flour.

THE SUN AND WIND.

A Dispute once arose Betwixt the north Wind and The Sun, or at least Æsop says so, as to their Respective Superiority, and they agreed to See which could first induce a Traveler to part with His cloak. The North Wind began and blew through his Whiskers with a very Cold Blast, indeed, accompanied with a shower of wet, Wet Rain. That's where the Wind got Left. The Traveler Exclaimed: "Darn this Journeying on Foot, anyway. I shall save time, attain a Green old Age, and leave a respectable name to my children if I travel on that Famous Line, the Wisconsin Central." And he "came in out of the wet," and bought a ticket, and rode in the Luxurious Coaches, and slept at night in the Magnificent Sleepers furnished by that line.





Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Creat National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHI-CAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, A. V. H. CARPENTER, General Manager. Gen'l Pass. and Tkt. Agt.

For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

THE CHICAGO AND

OVER 7,000 MILES

Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the

WEST AND NORTHWEST.

The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and

FAST VESTIBULED TRAINS

Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.

ONLY LINE TO THE BLACK HILLS For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill. J. M. WHITMAN, H. C. WICKER, E. P. WILSON, General Manager. Traffic Manager. Gen'l Pass. Agt.

from the diary of tourists, commercial travelers, busi-ness men and others has re-

That the Wisconsin Central has the unqualified endorsement of all:

That the Wisconsin Central has to-day the most popular line between Chicago and Milwaukee, and St. Paul, Minneapolis and the Northwest;

That the Wisconsin Central is daily adding to its admirers as the recognized Pullman line between Chicago and Milwaukee and Ashland, Duluth and Lake Superior;

That the Wisconsin Central touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the Northwest;

That the Wisconsin Central has made an enviable reputation with its peerless Din-ing Car Service;

That the Wisconsin Central runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:

That the Wisconsin Central has representatives distributed throughout the country, Short Route to Florida. who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

S. R. AINSLIE,

H. C. BARLOW,

LOUIS ECKSTEIN,

Asst, Genl. Passr. & Tkt. Agt. MILWAUKEE, WIS.

ALL persons desiring to reach the entire milling and grain trade of America, by cir-

cular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888-89.

WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.



ILWAUKEE. LAKE SHORE & WESTERN R'Y

AND MOST POPULAR LINE AND Through Sleeping and Parlor Car Route PROM

CHICAGO and MILWAUKEE

SHEBOYGAN, MANITOWOC, APPLETON, NEW LONDON AND WAUSAU,
TO ALL THE IMPORTANT TOWNS IN THE Gogebic, Penokee and Montreal Iron Ranges, HURLEY, BESSEMER, HRONWOOD, WAKEFIELD AND GOGEBIC, TO

ASHLAND, SUPERIOR and DULUTH, To all Fox River Manufacturing Cities

The Lumbering Districts of Northern Wisconsin and Michigan.

SPORTSMEN The best Fishing and Hunt-ing in the NORTHWEST reached by the ASHLAND ROUTE. Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Infor-

Milwaukee Office, 95 Wisconsin St. F. P. REGAN, H. G. FLEITH, City Pass. & Tkt. Agt. Com. Freight Agt.

ERNEST VLIET, H. F. WHITCOMB, Gen'l Pass. & Tkt. Agt. General Manager. MILWAUKEE.

Milwaukee & Northern R. R.

SHORT LINE

Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic. Iron Mountain, Menominee, Mich.

Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.

THE TABLE OF EXPRESS TRAINS.

ARRIVE. DEPART. STATIONS. *2:00 A. M. *3:25 A. M. Champion, Republic, Iron Mountain, Menominee, 12:00 A. M. 3:25 A. M. Marinette, Green Bay, 3:10 P. M. 3:55 P. M. Green Bay, Depere, Apple-ton, Menasha, Neenah, 3:55 P. M. 3:10 P. M. 10:10 A. M.

All other trains daily except Sunday. Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M. New Passenger Station, Fourth Ward Park.

C. F. DUTTON, W. B. SHEARDOWN, General Manager. General Ticket Agent

CHOICE OF 3 TRAINS

BETWEEN-

CHICAGO and INDIANAPOLIS, CINCINNATI,

> LOUISVILLE, LEXINGTON.

Unsurpassed Pullman Car Service.

Fast Trains. Sure Connections.

Be sure your tickets read via Monon Route (L. N. A. & C. R'y), and your comfort

is guaranteed. For Maps, Guides, etc., address

JAMES BARKER, Gen'l Pass'r Agent, CHICAGO.

Adams Express Building.

PRIVATE - TELEGRAPHIC - GIPHER

Millers, Flour @ Grain Brokers

For Private Telegraphic Correspondence, either for Land or Cable Lines.

** 1888 Edition, just out, March 1, 1888, revised, amended and added to, to meet all
the requirements suggested by the
members of the Miller's National
Association, who use more copies
of the Code than all others
combined.

Published by the Riverside Printing Co., Milwaukee, Wis. For terms, etc., address, stating number of Codes probably wanted,

RIVERSIDE PRINTING CO., Milwaukee, Wis.



THROUGH CAR LINE

WITH THROUGH CAR SERVICE BETWEEN

CINCINNATI and INDIANAPOLIS.

CINCINNATI and TOLEDO and DETROIT, CINCINNATI and CHICAGO,

CINCINNATI and ST. LOUIS

CINCINNATI and DAYTON and RICHMOND, CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WEET.

With THROUGH RECLINING CHAIR CAR between

CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)

PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."

Ask for Tickets via C. H. & D. R. R.

For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,

W. H. Fisher, Gen'l Agt., Indianapolis, Ind.

John Bastable, District Pass'r Agt., Toledo, O.

B. B. Tracy, Northern Pass'r Agt., Detroit, Mich.

W. H. Whittlesey, Central Pass'r Agt., Detroit, Mich.

W. M. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.

J. G. Mason, City Passenger Agent, Cincinnati, O.

Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.

C. C. WAITE, Vice-Pres't & Gen'l Manager.

CHAS. H. ROCKWELL,

Chicago & Grand Trunk R'y

NIAGARA FALLS AIR LINE

Is the Shortest and Most Direct Route East.

THROUGH SLEEPING AND PARLOR CARS TO

New York, Montreal and Boston.

The Only Line running Through Sleeping Cars between CHICAGO and PHILADELPHIA

Via NIAGARA FALLS Without Change.

Trains leave Dearborn Station at 9.05 a, m., 3.25 p. m. and 8.15 p. m. 8.15 p. m. train has elegant Pullman Sleeping Car to Detroit daily.

GRAND HAVEN ROUTE

Detroit, Grand Haven & Milwaukee, R'y, Is the Shortest, Cheapest and Quickest Line between MILWAUKEE, Points in MICHIGAN, CANADA and the EAST.

A delightful 5 Hour Daylight Trip on the Palace, Iron Side Wheel Passenger Steamer,

CITY OF MILWAUKEE.

Steamer leaves Milwaukee daily at 11.30 A. M., connects at Grand Haven at 5.30 P. M. with Fast Limited Express, which reaches Detroit, 11.30 P. M.; Niagara Falls, 7.30 A. M.; New York, 10.00 P. M.

34 Hours Milwaukee to New York.

Round Trip Tourist Tickets to the Thousand Islands, Rapids of the St. Lawrence, Mountains and Sea Shore now on Sale. Pamphiets descrip-tive, Rates, Routes, etc., sent by mail from Com-pany's Office, 99 WISCONSIN STREET.

2nd class tickets good on all trains. W. E. DAVIS,
Gen'l Pass's & Gen'l Western
Ticket Agent,
CHICAGO.
CHICAGO.

E. H. HUGHES,
Gen'l Western
Pass'r Agent,
CHICAGO.
GHICAGO.
MILWAUK Nor. Pass'r Ag't, 93 Wisconsin St., MILWAUKEE.

STEAMSHIP TICKETS

To or from Europe at lowest rates, by all lines. Cabin plans can be consulted and best accommoda-tions secured as far in advance as desired.

Information furnished by mail or on application at office, 99 Wisconsin St., Fouthwest cor. Broadway. B. C. MEDDAUGH, Gen'l S. S. Agent. MILWAUKEE, WIS.

Goodrich Passenger Steamers

TWICE DAILY EACH WAY BETWEEN

MILWAUKEE A CHICAGO.

CHICAGO AND RACINE LINE. Leave Milwaukee. FOR 7.00 P. M. Chicago 5.00 A. M. 47.30 A. M. Chicago 4.00 P. M. 7.00 P. M. Racine 5 00 A. M.

FARE TO CHICAGO ONLY \$2.00.

ROUND TRIPS, \$3.50. Meals and berths included on first-class tickets. Sure connections at Chicago with all morning trains for all points east, south and southwest.

Kewaunee and Ahnapee Line. — Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.

Menominee and Sturgeon Bay Line. – Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at Green Bay and Depere Line.—Wednesdays and Sundays at 7:00 A. M.

Manistique, Thompson and Gladstone Line.— Wednesdays and Sundays at 7.00 A. M. Fayette, Garden and Nahma Line.—Wednes-ays, Saturdays and Sundays at 7.00 A. M.

Escanaba Line.—Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M. Bailey's Harbor and Jacksonport Line. Wednesdays at 7.00 A. M.

Fish Creek, Egg Harbor and Sister Bay Line.— Tuesdays, Thursdays and Saturdays at 7.00 A. M. Close connections with railroad at Escanaba for Negaunce, Ishpeming, Quinnessec, Norway and all Lake Superior points.

The new steamer City of Racine will be the daily 7.00 P. M. boat out of Milwaukee for Chicago, except Sunday nights. The steamer Chicago will be the Sunday nights boat.

C. HURSON, Secretary and Agent THOS. FORBES, Passenger Agent.

* Except Sundays and Mondays. | † * Except Mondays.



94 MILES THE SHORTEST, 8 HOURS THE QUICKEST,

CINCINNATI TO NEW ORLEANS

Entire Trains, Baggage Car, Day Coaches and Sleepers run through without change.

110 MILES THE SHORTEST, 7 HOURS THE QUICKEST,

GINGINNATI to JACKSONVILLE, Fla.

Time, 28 Hours.

Through Sleepers without change. The Short Line between Cincinnati and

Lexington, Ky., Time, 2½ Hours. Knoxville, Tenn., 12 "
Asheville, N.C., 17 "
Chattanooga, Tenn., 11 "
Atlanta, Ga., 15 "
Birmingham, Ala., 16 "

Direct Connections at New Orleans, and Shreve-port, for Texas, Mexico and California.

Trains leave Central Union Depot, Cincinnati, crossing the Famous High Bridge of Kentucky, and rounding the base of Lookout Mountain.

Over One Million Acres of Land in Alabama, the Future Great State of the South, subject to pre-emption. Unsurpassed Climate.

For Rates, Maps, etc., address, C. S. HENRY, Traveling Passenger Agent, 193 Clark St., Chicago, Ill.

J. C. GAULT, CINCINNATI, D. G. EDWARDS, Gen'l Mgr. OHIO. G. P. & T. A.

Cleveland, Cincinnati, Chicago & St. Louis RAILWAY

Arrive at Milwaukee BIG • FOUR • ROUTE

Consists of the lines formerly operated under the names of Cincinnati, Indianapolis, St. Louis & Chicago R'y ("Kankakee Line"), the Cleveland, Columbus, Cincinnati & Indianapolis, and Indianapolis & St. Louis R'y ("Bee Line Route"), and with its connow form direct routes of travel between ALL POINTS in the

North, East, South and West

With schedules arranged to accommodate the traveling public in each direction, and the finest equipment of Day Coaches and Parlor Cars, Recliningchair Cars and Palace Sleeping and Drawingroom Cars in America, the management of the consolidated system confidently expect a continuance of the popularity enjoyed by the individual lines.

Rates to and from all points reached by the "Big Four Route" will always be as low

as via any other first-class line. For further information call on ticket agents throughout the country.

O. C. MURRAY, D. B. MARTIN, Gen'l Pass'r Agent. CINCINNATI, O.

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade-



EW YORK BELTING & PACKING

15 PARK ROW, NEW YORK.

TEST HOSE

Oldest and Largest Manufacturers in the U.S.A. of

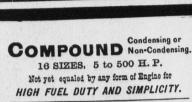
Vulcanized Rubber Fobrics for Mechanical Purposes

MILLERS' HOSE A SPECIALTY.

Also a Good STEAM HOSE.

RUBBER MATS,
RUBBER MATTING,
and STAIR TREADS. RUBBER BELTING, PACKING AND HOSE.

SALESROOMS: PHILADELPHIA, 308 Chestnut St.; BOSTON, 52 Summer St.; CHICAGO, 151 Lake St.; ST. LOUIS, 907-911 N. Main St.; DENVER, 1601-1611 17th St.; CHARLESTON, 160 Meeting St.; MINNEAPOLIS, 28 South 2d St.; CINCINNATI, 161-165 W. Pearl St.; ATLANTA, 16 Decatur St.; DETROIT, 16-24 Woodward Ave.; BALTIMORE, 12 N. Charles St.; BUFFALO, 124-128 Washington St.; NEW ORLEANS, 48 Canal St.; KANSAS CITY, 1311-1313 W. 12th St.; RICHMOND, 1206 East Main St.; European Branch, HAMBURG, GER., Pickhuben 5, (Freihafengebiet).



STANDARD 13 Sizes in Stock. 5 to 250 H. P. 3000 in use in all parts of the Civilized World.

JUNIOR 6 Sizes in Stock, 5 to 50 H. P. An Automatic Engine cheaper than a Slide Valve. Over 300 Sold the First Year.

All the above built strictly to Gauge with INTERCHANGEABLE PARTS. REPAIRS CARRIED IN STOCK. SEND FOR ILLUSTRATED CATALOGUES.

SELLING DEPARTMENT IN THE UNITED STATES. Hathaway Building,
Westinghouse Building,
(burch, Kerr
656, 158 Lake St.

New York, Boston, Pittsburgh, Chicago, Philadelphia,

608 Chestnut St. M. R. Muckle, Jr. & Co. 302, 304 Washington Av. | Fairbanks St. Louis, Kansas City, 312 Union Avenue,
Denver, 1330 Seventeenth St.

Omaha, Pine Bluffs, Ark.

1619 Capitol Avenue, F. C. Ayer. Geo. M. Dilley & Sons. Salt Lake City, 259 S. Main St.) Utah & Montana Butte, Mont. L. Granite St.) Machinery Machinery Co.

San Francisco, 21, 23 Fremont Street, Parke & Lacy Co. Portland, Or. 33, 35 N. Front St. Parke & Lacy Mch. Co. Charlotte, N. C.36 College St. Atlanta, Ga. 45 S. Prior St. The D. A. Tompkins Co.

Keating Imp. & Machine Co. C. E. James & Co. Dallas, Tex. Chattanooga, Tenn.,

Condemnation · of · Competitors IS THE MEASURE OF SUCCESS.

CHALLENGE the wheat heater concern advertising their heater as "replacing the Welch" to publish the terms on which the Welch Wheat Heaters are replaced. I could replace any other make of heater by allowing a big price for it and selling mine low, which is equal to paying

The "Welch" is fully guaranteed, sold on its merits and used more than any heater on the market.

823 SECOND ST. ST. LOUIS, MISSOURI. A. B. BOWMAN.

* EVERY * MILLER * Whether using Water or Steam Power, who wants

Save His Machinery

And reduce the cost of running expenses, should have a copy of a Pamphlet on Lubrication, which will be SENT FREE on application to

ROCHESTER, N. Y. VACUUM OIL CO..

MANUFACTURERS OF HIGH-GRADE OILS.

Branch Offices and Warehouses in all the Leading Cities.

Stilwell's Pat.

Lime Extracting HEATER FILTER

COMBINED.

Is the only Lime Extracting Heater that will Prevent Scale in Steam Boilers Removing all Impurities from the water before it en-ters the boiler.

Thoroughly tested. Over 3,000 of them in daily use.

This cut is a facsimile of the appearance of a No. 5 Heater at work on ordinary lime water when the door was removed after the Heater had been running two weeks.

Illustrated Catalogues. STILWELL & BIERCE MFG. CO.

DAYTON, OHIO.



THE PARTY.

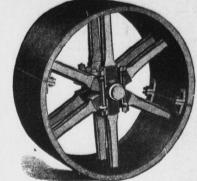
St. 5 19 3/3 19 2/4

Section 6

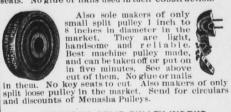
ye mitable in a

10/12

Menasha Hardwood Pulleys.



We are sole makers of hardwood bent rim, oak spoke arm, iron hub pulleys; gripped to shaft with bolts and using patent paper bushings. They can be put on shaft without taking it down or cutting key seats. No glue or nails used in their construction.



MENASHA SPLIT PULLEY WORKS,

Improved + Walsh + Double + Turbine



This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for par-ticulars,

B. H. & J. SANFORD, Phonix Iron Works.

Sheboygan Falls, Wis.

Before shutting down for tepairs or putting in any boilers, investi-gate the merits of the RELIANCE

Safety Water Columns

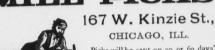


Send for Illustrated Price List.

RELIANCE GAUGE CO.. 863 Sheriff St., CLEVELAND, OHIO.

JOHN C. HIGGINS & SON. Manufacturers and Dressers of

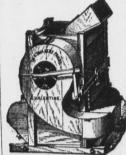
MILL PICKS





Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canadas, and if not superior in every respect to any other pick made in this or any other country there will be no charge, and I will pay all express charges to and from special steel, which is manufactured expressly for me at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct Importation. References furnished from every State and Territory in the U. S. and Canadas. Send for Circular and Price List.

IMPROVED CORN SHELLER,



BEST CORN SHELLER MADE FOR MILL USE.

Simple in Construction

Almost Noiseless, Requires Little Power

HUNDREDS ARE IN USE

For descriptive circular, price list, etc., Address

JACOB VALENTINE,

Gorham, Ontario Co., N. Y.

CHAS. A. PRAHL



Elevated Feet for Shortened Limbs, Braces for Weak Ankles and Spinal Curvatures, Elastic Stockings & Trusses. MILWAUKEE, WIS. 300 GRAND AVENUE,

The INK used on this paper is from

the factory of CHAS. ENEU JOHNSON & CO.,

PHILADELPHIA, PA.

Western Branch House: 40 La Salle St., CHICAGO

MILWAUKEE BAG COMPANY,

COTTON, PAPER AND



FLOUR SACKS



DEALERS IN

Grain Bags, Twines, Centals, Etc.

TELEPHONE NO. 427.

No. 236 East Water Street,

MILWAUKEE, WISCONSIN.

SCHIEREN'S

OAK-TANNED

LEATHER BELTING

Cotton Belting and Hose



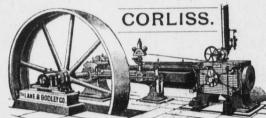
Rubber Belting.

372 & 374 EAST WATER STREET MILWAUKEE.

131 EAST THIRD STREET ST. PAUL.

201 NICOLLET AVENUE MINNEAPOLIS.

LANE & BODLEY CO.,



MANUFACTURERS OF AUTOMATIC CUT-OFF

celled Workmanship.

Steel Boilers, Feed Water Heaters Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., Cor. John & Water Sts., CINCINNATI, O.

"TRIUMPH" CORN SHELLER

2000 BUSHELS PER DAY. Shells wet or dry corn. Cheapest and Best Sheller. PAIGE MFG. CO ,



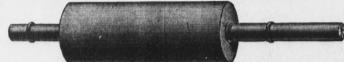
Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

Farrel Foundry & Machine Company, ANSONIA, CONN.,

Sole Manufacturers of the Celebrated



FOR USE IN ROLLER MILLS.

The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

Chilled Rolls for Paper Mills a Specialty. Mention this paper when you write to us.

WAYNE, INDIANA

MANUFACTURERS OF-



First Class Steam Boilers,

INCLUDING

Locomotive, Upright, Flued and Tubular

Portable Boilers of all Sizes and Styles.

TWO SHEET BOILERS A SPECIALTY.

Contracts taken for Complete Power Plants.

Prices furnished on Application.



ROBERT POOLE & SON CO., Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

Mixers and General Outfit for Fertilizer Works. Shipping Facilities the Best in all Directions.

ROBERT POOLE & SON CO., BALTIMORE, Md.

N. B .- Special attention given to Heavy Gearing for Pulp and Paper Mills: [Mention this paper when you write to us.]

WM. PLANKINTON, President. FREDERICK D. DAY, Treasurer,

CAPITAL STOCK, \$100,000. 1

GEO. N. SCEETS, V. Pres't & Mgr. J. G. THOMPSON, Secretary.

MILWAUKEE, WIS.

BBITT * METALS,

Brass and Bronze Castings.

Ingot Metals.

Our "Badger State Metal" is the best anti-friction Metal on the market. We make a specialty of furnishing special mixtures to large consumers, putting on buyer's brand when desired.

MILWAUKEE BRASS AND COPPER WORKS, MILWAUKEE, WIS.

Send for Circular and Price Lists.

Mention this Paper.



BRANCH HOUSE, 1425 EAST MAIN ST., RICHMOND, VA.

THE EUREKA TURBINE The Best Part-Gate Wheel Ever Built. Absolutely unequalled in efficiency, is shown by the accompanying table from the records of actual tests at the HOLYOKE, MASS., TESTING FLUME.

PERCENTAGE OF EFFICIENCY.

Full Gate. 1/4 Water. 1/4 Water.

No other turbine ever approached the above figures at part-gate. We publish our part-gate figures. Others significantly omit them.

The Allentown Foundry & Machine Co., ALLENTOWN, PA., U. S. A.